

SPECIAL

MAY 15

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HOW TO EAT CLEAN & LIVE HEALTHY

America's Best Supermarkets

The buzzword in food stores these days is 'fresh.' Everyone, it seems, wants lots of fruits and vegetables, plus freshly made meals to take home. We reveal which chains are the best—and the worst.

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Pesticides in Produce

Our exclusive guide tells you which conventional and organic produce is safest for your family—and the environment.

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SPECIAL: HOME & YARD SECTION

The Low-Impact (but Still Lush) Landscape

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Best Mowers & Tractors

Our exclusive tests recommend almost 70 mowers, tractors, and zero-turn riders to help you keep your yard looking its best. Plus 20 string trimmers to take the edge off.

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Take Back Your Garage

Having trouble finding your stuff amidst all the clutter? You're not alone, according to our national survey. But stick with us. You really *can* stash your stuff and still have room for your cars.

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Photo by Tom Schierlitz/Trunk Archive

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RATINGS We rate products using these symbols:

● Excellent ● Very Good ○ Good ● Fair ● Poor

READER LETTERS

Radiologists, Realtors, and Readers Sound Off



The Benefits and Risks of Medical Radiation

Medical imaging saves lives. Still, all medical procedures carry some risk. Your article (“Overexposed,” March 2015) does not show how imaging risks are lowered through standards, advancing technology, and initiatives like Image Wisely® and Image Gently® that help providers optimize radiation dose. United Nations (UNSCEAR) experts and the National Council on Radiation Protection & Measurements have stated that the studies cited to show direct risk from CT scans do not prove such claims. Recent French and German studies show no significant excess cancer risk from CT scans. While modern CT scanners use up to nine times less radiation than a decade ago, exams should be done appropriately and only when necessary. Rather than avoid needed care, patients should discuss exam benefits and risks with their doctor. For additional information, go to radiologyinfo.org.

—Bibb Allen Jr., M.D., FACR, Chair of American College of Radiology, on behalf of U.S. radiation expert organizations

EDITOR’S NOTE Consumer Reports does not agree with the letter writer’s description of the research linking medical radiation and cancer. The World Health Organization, the National Institutes of Health, and other expert groups say that the form of radiation that’s used in medical imaging is a known carcinogen. However, as we said in our article, no patient should ever avoid an imaging test if they really need it. But many of the scans doctors are ordering serve little if any medical purpose. And researchers have estimated that we’re still many years away from replacing the many outdated scanners in this country. Though new safety features can limit the amount of radiation patients are exposed to, more needs to be done to curb the current misuse of medical imaging.

Dirty Secrets? Not This Realtor

As a real estate agent for 39 years, I am compelled to share how much most of my fellow Realtors really care about their clients and want them to have the very best property they can afford. “What Your Real Estate Agent Doesn’t Want You to Know” (March 2015) gave me a headache. We are sickened when we experience that behavior. The secret to a long career is putting your clients’ needs first, and the rest will follow.

—Stephanie Loysen, Laguna Niguel, CA

A Tip for a Technical Service Bulletin Search

I was delighted to see the instructions for locating technical service bulletins in “Quick Car Tips” (Your Advocate, March 2015). Following the instructions, I located five TSBs of interest for my car. Clicking on “Request Research” reveals: “We charge a standard labor charge of \$50.00 per hour for requests involving computer searches, locating and copying documents.” Your readers’ requests may be subjected to (long) turnaround times and fees. Try calling the NHTSA Vehicle Safety Hotline at 888-327-4236 first.

—Bill Russo, Dayton, OH

EDITOR’S NOTE The TSB should be enough to determine if a car is exhibiting those symptoms—or if it should go to the dealer for further investigation—without the need to order more documentation through the NHTSA website.

A Throwback to When Laundry Day Really Took All Day

The photo in “Looking Back,” February 2015, made me laugh! Pearl choker aside, the woman demonstrating the nonautomatic style washing machine would never be able to get that wad of fabric through the wringer. Each piece of clothing had to be carefully watched so that it wouldn’t wrap around the rollers and cause a jam. As a 6-year-old mama’s helper in 1952, I got to push down on the handle on the side of the tub to start the washing machine’s agitator. Oh, the good old days! It didn’t take much to keep us entertained!

—Lee Cavanaugh, Walnut, CA



SEND your letters for publication to
ConsumerReports.org/lettertoeditor.

FROM THE PRESIDENT



Helping You Choose the Best Produce

This issue promises to bring whole new meaning to the phrase “clean living.” As you shop for produce in your local supermarket, we want you to know what’s in store for your health, the health of those who produce your food, and the environment.

That can be hard when reading labels like “natural,” “organic,” and “imported.” In “Eat the Peach, Not the Pesticide,” on page 29, we examine the real dangers of pesticide exposure and evaluate the risk from produce from across the world. Our scientists have developed a risk guide for 48 different fruits and vegetables.

We also take a deeper look at the herbicide glyphosate, known by the commercial name Roundup, the most commonly used agricultural pesticide in the U.S. We have no idea how much of it is in our food because the government doesn’t regularly test produce for it. We’d like to see the government add it to pesticide monitoring programs.

Eating plenty of fruits and vegetables is always a healthy choice, and you can always rely on CR to help you make informed choices. Your loyal support allows us to work tirelessly to impact the marketplace in ways that contribute to a healthier you and a healthier planet.

—Marta L. Tellado,
President and CEO

FROM THE EDITOR



Let's Dish the Dirt

There's a big, fat, juicy tomato on our cover for a good reason: This issue is about freshness. "Freshness" includes consumers' growing appetite for food that was just-grown or just-made, as well as for fruits and vegetables that are local, organic, or pesticide-free. One way to have all of those things is to do your own gardening.

It makes sense, then, that gardening is having a renaissance. Regardless of your politics, you can probably thank Michelle Obama partly for that. The first lady planted her first White House kitchen garden shortly after moving to 1600 Pennsylvania Ave. in 2009. Within five years the number of American households growing their own food in home and community gardens has jumped by 17 percent, to more than 42 million, according to the National Gardening Association.

Whether you're cultivating a plot for food or flowers, or to attract butterflies and birds, we have tips on how to do it using fewer chemicals and less water. We offer seven steps to a sustainable lawn and even have advice on how to declutter the garage where you store all of your gardening equipment. Plus there's best-buy advice on mowers, string trimmers, and tractors.

Ready to get growing? Start on page 33.

—Ellen Kampinsky,
Editor-in-Chief

Coming in June

SMART MOVES
FOR THE
WARM MONTHS
AHEAD:



Must-Haves for Outdoor Entertaining



The Internet and Your Privacy



Your Shrimp Shopping Guide



Get Your Car to 200,000 Miles



Frequent-Flyer Exposé

YOUR IDEAS COUNT

"I don't like it."



"I love it!"

Give Us Your Two Cents

How do our Supermarket Ratings sync with what you see in your local store? Will our guide to produce change the way you shop? Tell us what you think about anything and everything in this issue of Consumer Reports.

➔ **SHARE YOUR INSIGHTS** by sending us a letter for publication—or by joining our Reader Advisory Panel. Go to CRRResearch.org/feedback.

CR EXPLAINED

How We Mow When We're Covered in Snow

IT'S NOT EASY to test lawn equipment in February—at least not in New York, where there's usually 10 inches of snow in the yard, below-zero temperatures, and howling winds.

So, like Major League Baseball, we pack up our lawn-care team and head down to Florida (to Fort Myers, to be specific) to get a head start on the growing season—so that readers can get a jump on theirs, too.

We buy new mowers and tractors in Florida, right out of the stores, just as you do when you make a purchase. Then we put the lawn equipment to work on the grounds of Fort Myers' McGregor Baptist Church.

The good folks at the church get a nicely trimmed campus, and we get to put mowers, tractors, and riders through their paces.

For this year's tests, we bought more than 30 new mowers and tractors. Then we got going on almost 7 acres of grass. In the end we bagged more than 1,500 pounds of grass clippings; the results of our tests start on page 33.

As for the critters we encountered in Florida—mosquitoes, fire ants, and the like—we also have info on how to repel them. But you'll have to wait for our story on insecticides ... in the next issue.



Your ADVOCATE

MORE CLEAN, LESS MEAN

The brand-new, leafy-green Safer Choice logo at right will soon be on hundreds of household cleaning products, signaling those that the Environmental Protection Agency says are least harmful to the planet and your health. Not all cleaning-product labels are so understandable; turn the page to learn how to decode them.

PHOTOGRAPH BY LEVI BROWN

WHAT THE LABEL MEANS

It indicates that the ingredients in a cleaner have been analyzed by the EPA for potential health and environmental risks, and are the least worrisome when compared with other chemicals in their class.

WHY WE LIKE IT

The label lets you know that a cleaner is free of ingredients that can be detrimental to your health.

LEARN MORE

Get a list of products at epa.gov/saferchoice and see more labels demystified at Consumer Reports' GreenerChoices.org.



LABEL OF THE MONTH

3 Things to Watch Out for on Cleaning-Product Labels

IF THERE WERE ever a contest for the most cluttered labels, cleaning products could take home the prize. Looking at all of the hyperexcited claims—not to mention the tough-to-pronounce ingredients and myriad warnings—you might wonder about which info you can trust. Below, three expert tips; at right, the truth behind the hype.

BE WARY OF 'ANTIBACTERIAL'

Why? Products so labeled often contain dimethyl benzyl ammonium chloride (found in some all-purpose cleaners and disinfecting wipes). It may contribute to breeding antibiotic-resistant bacteria. Also watch out for cleaners with triclosan. "There's clear evidence that there's a release of toxic substances from the time the chemical is used to the time it's destroyed," says Stuart Levy, M.D., director of the Center for Adaptation Genetics and Drug Resistance at Tufts University.

LOOK CLOSELY AT TOILET-BOWL CLEANERS

They often contain some of the most dangerous chemicals found in a home, according to the American Association of Poison Control Centers. Those with hydrochloric acid can burn your skin and eyes.

REMEMBER, 'BLEACH' ISN'T A DIRTY WORD

It's unnecessary for most standard cleaning and should be used sparingly. But it shouldn't be a deal breaker in a product you'll use on occasion, say, to clean up after a sick child. Or use the real thing in a dilution of 1-to-32.

What's on the Bottle and What It Means

Very little cleaning-product labeling is regulated, says Urvashi Rangan, Ph.D., director of Consumer Reports' Consumer Safety and Sustainability Group. An exception: sanitizing and disinfecting claims for non-hand soaps, for which a company must submit safety and efficacy data to the Environmental Protection Agency. We take apart some common terms:

NONTOXIC You'd think that a product with that claim wouldn't cause adverse health effects. But there's no standard definition.

PLANT-BASED The contents may have come from something natural, but they could have been processed into something chemical.

FRAGRANCE-FREE It doesn't mean fewer ingredients, says Pat Slaven, Consumer Reports' lead tester of cleaning products. Many manufacturers add a neutralizing odor to mask the less-than-pleasant scent of certain active chemicals.

ORGANIC Only the USDA Organic seal ensures that 95 percent of the contents are organic. Without that seal, it can be tough to know which ingredients meet the standards.

GLUTEN-FREE So long as they're not washing down dinner with laundry detergent, even people with celiac disease can safely use most cleaners.

A Recalled Degreaser

Earlier this year, the Consumer Product Safety Commission recalled CR Brands Mean Green Super Strength Cleaner & Degreaser and Mean Green Industrial Strength Cleaner & Degreaser, which were mislabeled "Does not contain ammonia." The products, in fact, might contain ammonia. The recall involves products with date codes 4225, 4226, 4227, 4228, 4229, and 4230, which you can find below a bottle's label. The mislabeling is troubling, especially because the presence of ammonia can be dangerous. The combination of ammonia and bleach can create toxic fumes.

PROBLEM SOLVER

A Dream Vacation, A Travel Insurance Nightmare

Buying a policy via AmEx Travel almost cost a couple an additional \$489

WHILE BOOKING a weeklong cruise to Panama on a Windstar sailing yacht, Marita and her husband, Frank, also took American Express Travel's offer of a \$1,149 insurance policy from CSA Travel Protection. That was fine with the Florida couple in their 70s, who always get travel insurance. The CSA plan would provide a full refund of their \$8,000 vacation if they needed to cancel before or during the trip.

The couple, whose names we've changed at their request, felt differently seven weeks later upon learning that they could have bought an equivalent policy directly from Windstar for \$660—a savings of \$489. Marita contacted American Express Travel twice but got nowhere; then she contacted us. The documents she sent indicated that she had declined the Windstar insurance; she said she was never offered that alternative, so she couldn't have declined it.

In order to get the couple's \$489 back, we had to work our way through a thicket of confounding rules. The agent who sold the CSA policy told us that a refund was impossible because the policy's 10-day cancellation period had passed. The American Express corporate office didn't respond to our request for a resolution.

We also contacted CSA, which said it would cancel the policy and give a refund. That was great, but we wanted to make sure that Windstar

would issue a policy to cover the couple. "We'd love to insure this trip," said Amanda Graham, a spokeswoman for Windstar. But there was a problem: Purchase was required at least 90 days before sailing, and it was now too late.

CSA, however, finally saw how Marita and Frank were in a jam through no fault of their own. It offered to make good on the mix-up by letting them keep the policy and refunding the difference between its price and Windstar's. "This is an opportunity to help a customer who was not satisfied," said Bob Chambers, CSA's vice president of operations.

Marita was thrilled. "We appreciate CSA's trying to find a solution to the problem," she told us. As for American Express? Marita says she won't book travel through it again.

How to Keep Your Costs Down A travel agent might offer limited insurance options or steer you toward a plan that yields the best sales commission. The going rate for insurance is 4 to 10 percent of your prepaid, nonrefundable expenses for the travel itself. Shop around with the website Insure My Trip, which sells policies from 27 insurers.

→ FED UP WITH A COMPANY'S CUSTOMER SERVICE? Contact Consumer Reports' Problem Solver at problemsolver@cr.consumer.org.

READER ROUNDTABLE

Curious About 'Connected' Homes? Start Here

Heard about apps that can turn your oven on or your thermostat down when you're in another room or even another ZIP code? Shax Riegler, head of home and appliance content for Consumer Reports, fielded questions on "smart" products at the 2015 Kitchen and Bath Industry Show in Las Vegas earlier this year. Here, three takeaways:

BE PATIENT It's early days for the technology, especially the operating systems or hubs (on the market now from Iris, SmartThings, and Wink, and coming soon from Apple) that sync with smart-phone apps and communicate directly with appliances. One company should emerge as a market leader. In the meantime, we're watching and factoring the tech into testing plans.

TEST THE WATERS Curious? Try out a smart light system. (We recommend Connected by TCP, \$50), or a digital door lock (full Ratings are available to Consumer Reports Online subscribers).

FACTOR IN PRIVACY The promise of connection and convenience also comes with the chance that you'll clue in potential thieves to your family's comings and goings. Simply registering the devices requires you to give away detailed personal info; the more devices connected, the more vulnerable you may be. We're looking into those concerns and will be reporting more fully over the coming months. Our advice: Wait a bit before going all in, but if a feature really tempts you, give it a try.

→ YOU SET THE AGENDA FOR OUR NEXT READER ROUNDTABLE If you could sit down with one of our experts, what would you want to discuss? Tell us at readerroundtable@cr.consumer.org.



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READER TIP

Toothpaste for Pearly Whites and Headlights?

I wondered whether baking soda/peroxide toothpaste could get rid of the haze that has built up on my car's headlights over the years. So I rubbed some on one of the lenses, then rinsed it off with water. It really worked!

—Thomas Fisher, Titusville, FL

Our experts add: We haven't tested that, but some toothpastes are mildly abrasive and could improve light transmission on uncoated lenses with limited oxidation. A heavily weathered lens will require a heavy-duty product. See our take at ConsumerReports.org/cro/headlight-restoration-kits/buying-guide.htm.



Send Your Top Tip To:
ConsumerReports.org/cro/readertip.
If we run it, we'll pay \$100!

THE WIN

A Huge Victory: A Fair Internet for Consumers



WHEN YOU PAY for Internet access, you don't want your service provider deciding which websites will load faster or which movies will download more swiftly.

After years of debate—and with the urging of consumer groups—the Federal Communications Commission in February approved strong new rules that regulate the Internet as a utility so that some companies won't get favored treatment. In other words, well-heeled companies can't buy access to fast lanes at the expense of everybody else.

Consumers Union, the advocacy arm of Consumer Reports, has been pressing the FCC for years for such strong regulations, a position often called “net neutrality.”

Our advocates met with the FCC's chairman, Tom Wheeler, to make the case for such oversight.

And we strongly recommended extending the rules to include wireless services because more people are relying on their phones and tablets to access the Internet. That's in there, too.

“It would be hard to overstate how big a deal this is for consumers and the future of the Internet,” says Ellen Bloom, senior director of federal policy for Consumers Union. “It's a huge win after years of fierce debates and massive opposition from the biggest providers of Internet service.”

The new rules, which take effect in a few months, will help make sure that whether you're shopping for homemade goods on a local website or the latest best seller on Amazon, the speed and quality of service will be the same.



JOIN OUR CAMPAIGN Learn more about our fight for real competition in the media marketplace at hearusnow.org.

GET INVOLVED

Actions You Can Take in May



SPEAK OUT TO ENSURE THAT YOUR FOOD IS SAFE

Food safety in the U.S. is currently monitored by 15 federal agencies, a fragmented setup in need of serious reform. A new bill in Congress, called the Safe Food Act, calls for the creation of a single, independent food-safety agency. Contact your lawmakers through opencongress.org to ask them to support that important bill.



SEND YOUR CABLE PEEVES TO THE FCC

Got a problem with your cable provider? Who doesn't? Now you might be able to sidestep their frustrating call centers by going to the Federal Communications Commission's new Consumer Help Center, at fcc.gov/complaints. You can log and track your problems involving wireless services, cable companies, and other communications providers. In an effort to represent consumers better, the FCC will wrangle responses from the companies on your behalf. Our advocacy arm, Consumers Union, provided input during the creation of the site.



NEED A MORTGAGE? START HERE

The Consumer Financial Protection Bureau just unveiled a new online tool for homebuyers in need of a mortgage. Updated daily, it has info on interest rates currently available to borrowers in your area. Go to consumerfinance.gov/owning-a-home.





Buried Under Student-Loan Debt? Help Is on the Way.

It's a problem that affects *all* Americans. Here's what you can do if you owe—and why we're calling for reform.

Think that student debt is only a college kid's concern? America's \$1.2 trillion in outstanding college loans has surpassed the country's \$700 billion credit-card bill. That huge liability is a drag on the entire U.S. economy. It's hardly a coincidence that the number of first-time homebuyers is at a generational low, while student-loan balances are at an all-time high.

Student-borrowing totals have tripled in the past decade, a trend that will probably continue as college costs keep rising. (A typical loan tab for 2013 grads is \$28,000.) There are many errors and inefficiencies within the labyrinthine repayment system. Consumers Union, the advocacy arm of Consumer Reports, has been fighting to make repayment easier and has had some success. In March the president proposed a Student Aid Bill of Rights, which should help make student-loan repayments more manageable. Until that happens, you can help yourself by:

Understanding repayment options. It's crucial for federal borrowers to pay down debt, and now there's some help. Some income-based plans limit monthly payments to 15 percent of your discretionary income, and pay-as-you-earn plans cap payments

at 10 percent of your discretionary income. Note that lowering your bills could mean paying more over the life of the loan. An extension could be for 10, 20, or even 25 years. But the plans forgive any remaining balance at the end of the repayment period. Compare choices by using the repayment estimator at studentloans.gov.

Knowing that a default leads to more debt. Default is a reality, especially for many older borrowers, some with loans from more

than 20 years ago. Defaulting often results in a doubling of the loan balance because of compounding collection fees and penalties. A federal student loan is considered in default after nine months of nonpayment; private student loans can default even earlier. Most can't be discharged, even in bankruptcy.

Asking for deferment or forbearance. If you're unemployed or underemployed, ask your loan servicer for a deferment application. Military service and at least half-time schooling also make you eligible for deferment. Forbearance is often at the loan issuer's discretion. Either way, interest usually continues to accrue, increasing the amount you'll owe once the deferment or forbearance ends.

Putting payments on autopilot. You'll receive an interest-rate reduction of 0.25 percent if your federal student-loan repayments are automatically debited from your bank account. But if you consolidate multiple federal student loans, you may have to repay those savings. Loan consolidation information can be found at studentaid.gov.

Paying it forward. Some federal student loans can be forgiven in part or in full if you make 10 years of loan payments on time and work in an eligible public-service job or for a not-for-profit.

WHAT NEEDS TO HAPPEN

Consumers Union is urging the Department of Education, the Consumer Financial Protection Bureau, and Congress to protect students who need to settle debt by:

- Improving borrowers' access to flexible payment plans.
- Creating a clear point of contact for questions and complaints.
- Increasing protections for borrowers with private loans.

Bitcoin: Beyond the Buzz

If you're still wondering what's the big deal about bitcoin, that's understandable. There are many questions about how it works and whether it will ever really be embraced by consumers. Here are some of the basics:

WHAT IS BITCOIN?

Started in 2009, bitcoin is a digital currency created and exchanged independent of banks or governments. It resides in a virtual wallet on your computer or smart phone, and some retailers accept it as payment. Bitcoins are a finite commodity: Only 21 million can be produced, making the currency inflation-proof.

DO I NEED TO BE A COMPUTER GEEK TO GET BITCOIN?

No. Consumers can obtain bitcoin, using dollars, through bitcoin exchanges such as Coinbase and Bitstamp, which also store the currency. (About 14 million bitcoins already exist.) You may also be able to invest in the currency one day. The Winklevoss Bitcoin Trust is currently seeking approval from the Securities and Exchange Commission to launch a bitcoin-based exchange-traded fund.

WHO REGULATES BITCOIN?

It doesn't have any of the consumer protections that are avail-

able with debit and credit cards, and there isn't an equivalent to the Federal Deposit Insurance Corporation, which protects money in banks and savings institutions. And there's no remedy from a third party (such as a credit-card issuer) in the event of fraudulent transactions. The Consumer Financial Protection Bureau has warned consumers about the risks of bitcoin transactions and investments, and several states have proposed regulations.

ISN'T THE VALUE TANKING?

Yes. Relative to the U.S. dollar, bitcoin fell in value by 57 percent

in 2014. At the beginning of last year, one bitcoin was worth more than \$700. By last February, it was worth only \$236.

THAT SOUNDS LIKE A LOUSY INVESTMENT. SO IS THERE ANYTHING GOOD ABOUT BITCOIN?

If there is, it's that bitcoin's promise—to make financial transactions fast and frictionless for consumers—could fill a need. At a bank, it can still take days for a check to clear. If bitcoin spurs the banking system to be more nimble, it might, at least indirectly, be the catalyst for a future consumer victory.

GRIPE-O-METER

Rules to Recycle By

Ninety-two percent of Americans think recycling is good for the environment, according to a new Consumer Reports survey. But that doesn't mean we always like to do it. Here's what we hate, and tips to make it easier.

1 in 10

Americans doesn't know what the local recycling laws are.

33% OF RECYCLERS

are irked when they see others who aren't recycling in public places.

1 in 4 recyclers

is highly annoyed by overflowing or hard-to-find community recycling bins.

24%

of American recyclers dislike not being able to recycle certain types of materials (e.g., plastics or paper).

TIP

"You can recycle films and wraps along with plastic grocery bags," says Patty Moore, a recycling consultant. "Dry-cleaning film, the wrap your toilet paper came in, even Ziploc bags—If it's clean and dry, it can be recycled at many major grocery chains."

16% OF AMERICANS

say they recycle only because it's required by law.



A TOP GRIPE

Lack of convenient ways to dispose of hard-to-recycle items such as batteries. (One in three recyclers finds that very irritating.) "Most electronic waste goes into landfills and incinerators," says Annie Leonard, executive director of Greenpeace.

TIP

Go to e-stewards.org to find a certified place to recycle electronics.

81 PERCENT OF WOMEN RECYCLE

73 PERCENT OF MEN RECYCLE

DO'S AND DON'TS

PAPER: KEEP IT CLEAN

"Don't recycle dirty paper, like paper towels or tissues, paper plates, or pizza boxes," Moore says. "I usually tear off the clean top of my pizza box and recycle it, and dispose of the greasy bottom."

GLASS: ONLY INTACT

"Don't put in teeny, tiny pieces of broken glass, which can get embedded in the other materials, like paper," says Darby Hoover, a senior resource specialist for the Natural Resources Defense Council. "Put them in the garbage."

ALUMINUM: KING OF THE DO-OVERS

"Any can with a pop-top can turn back into a can almost endlessly," Hoover says.

PLASTIC: CALL YOUR TOWN

"The little plastic number doesn't mean you can recycle it; it tells you what polymer it is," Hoover explains. "Check with your city or community to see which ones you can put in your bins."

29%

of Americans throw recyclables out with the trash often or every time.



ASK OUR EXPERTS

Do Smoke Detectors Still Need Biannual Battery Changes?

Q. I just spent \$20, again, on batteries for my smoke and carbon detectors. The Duracell batteries I bought are good for five and 10 years. Is the old idea of replacing batteries every six months still relevant with the new-technology ones?

—Ken Vanhoesen, South Walpole, MA

A. You have installed those detectors in order to stay safe, and the battery-change schedule is conservative because of an abundance of caution. It's true that a lithium 9-volt battery will probably last longer than an alkaline 9V (which in turn should last longer than a carbon-zinc 9V). But how much longer depends on a device's power drain. If you think that a detector's old battery has some "life" left, use it in a product that doesn't have to do with safety. Or consider a switch to a newer model of detector with a lithium-ion power source that lasts 10 years.

➔ **WE HAVE MORE THAN 140 EXPERTS ON CALL**
They research, test, and compare—so you don't have to! Share your toughest questions at ConsumerReports.org/askourexperts ... and watch this space for the answers.

Does Quick-Cooking Rice Have Less Arsenic?

Q. Thanks so much for the update on arsenic in rice (January 2015). But why are sushi and quick-cooking rice not included in the category "all types of rice"? And does rice that can be microwaved in 90 seconds qualify as quick cooking?

—Edward Roberts, Rosanky, TX

A. Sushi and quick-cooking rice were not included because they tend to be lower in arsenic than other types of rice from Arkansas, Louisiana, or Texas. We didn't have enough samples of 90-second rice to say anything definitive about it and therefore didn't include it in our analysis.

What's the Best Way to Heal a Cut?

Q. I have many topical antiseptics in my medicine cabinet, including hydrogen peroxide and Polysporin. What's the best one for treating minor cuts and scrapes?

—Eric Lemmon, Lompoc, CA

A. Most cuts and scrapes don't need a topical antiseptic or topical antibiotic. In fact, using those treatments can sometimes harm tissue and cause more problems. Recent research suggests that it's better to keep those types of wounds moist. Doing so helps encourage the formation of new tissue by facilitating healthy cell growth. It also prevents scabs from forming (which can hinder healing by



drying out skin cells) and might reduce pain and scarring. To maintain the proper moisture balance over a wound, use gauze or an adhesive bandage. Change it daily or after it gets wet, and clean the wound regularly using mild soap and water. If the wound doesn't appear to be healing or shows signs of infection, such as redness, pain, or pus formation, see your doctor.



When Shopping for a Vacuum, Should I Look for a HEPA Filter?

Q. I've noticed that HEPA filters are advertised as being better than normal filters for new vacuum cleaners. Are they really better, and is it worth it to buy a vacuum that has one?

—Dillon Yanick, Seattle

A. If you're concerned about a vacuum's emissions, buying one with a HEPA (high-efficiency particulate air) filter is a good choice. But many vacuums without one are just as good. Check our Ratings (find the most recent ones in the March 2015 issue or online for subscribers to ConsumerReports.org) and choose a model that scored well for emissions. Two that fit the bill are the Kenmore Elite 21814 and the Panasonic MC-CG937, both bagged canister models.

The UPDATE

THAT SINKING FEELING

A new mattress that's too soft—or too hard—can turn your night into a bad dream. Our exclusive Ratings reveal the best and worst beds for you. See page 16.

PHOTOGRAPH BY LEVI BROWN

PRESSURE POINTS

The key measures of a good mattress are back support, side support, and durability.

DON'T SNOOZE, YOU LOSE

It may look silly, but you need to lie on a mattress in the store for at least 15 minutes for a good test.

HAPPY RETURNS

Online sellers such as Casper and Tuft & Needle make it easy to exchange a mattress you don't like.

AVOID OVERPAYING

Some stores mark up prices by 50 percent, so don't be afraid to haggle.



THE MYTH OF THE \$5,000 MATTRESS

The spin Spending thousands guarantees blissful sleep. **The reality** You can get great, supportive bedding for less than a grand.



IS IT TIME TO BUY a new mattress? You have more options than ever before. The big news is that department and specialty stores such as Macy's, Sears, and Sleepy's are no longer the default destination. Now great mattresses—at great prices—can be found at Costco and online sellers such as

Casper and Tuft & Needle.

Not only are those companies lower-pressure—no pushy salespeople—but their prices are often gentler than you'd expect. And though you can't try out mattresses at a warehouse club or website, those sellers' return policies don't penalize you for

changing your mind. These days even electronics retailers such as Abt Electronics, P.C. Richard & Son, and HHGregg are getting in on the game in hopes of bolstering the razor-thin margins of entertainment gear with the fat markups that usually accompany mattress sales. All of that choice means you can find an excellent deal.

But no seller, whatever its selection, offers the perfect mattress. In our tests, no single mattress earned top-notch scores across the board. In our back-support test—which measures how well a mattress supports the curve of the spine—the top scorers were the Sleep Number i8 and c2 adjustable air beds. But they rated a notch lower for side support—a measurement of how well a mattress keeps the spine horizontal in that position.

At Consumer Reports, we test for attributes such as back and side support because a mattress that feels comfortable in the store may not be supportive enough night after night. So use our Ratings to find the most supportive options, then lie on the mattresses, if possible, to find the one that is most comfortable for you.

Paying more doesn't guarantee a better bed, either. The priciest mattress in our Ratings, the Dux 515 from the boutique retailer Duxiana, costs \$7,600. Although it made our list of picks because of fine side support and durability through a simulation of eight years of use, the latex-topped innerspring was softer than claimed and offered less consistent back support. For that price, you have every right to expect stellar performance across the board.

Beware of These Sleazy Sales Tactics

Come-on prices. Advertised specials are meant to get you into the store, not to sell you the best mattress. Because stores usually keep the priciest models up front, start in back with the least expensive beds from a few top brands, and work your way up in cost. But you can aim too low; our tests often show that the cheapest mattresses are just that.

• **The old switcheroo.** Ask for a particular mattress at a store and you'll often be told it was replaced by another nearby that's "exactly the same." But the Serta iSeries Vantage innerspring, which we're told has replaced the top-ranked Serta Perfect Day iSeries Applause, scored significantly lower for back and side support. So using our Ratings as a guide, stand

your ground and accept no substitute—you can't trust a sales rep's word on the subject of identical or similar mattresses. Many model names are also exclusive to a given seller, so you won't find at Sleepy's what Sears or Macy's carries.

• **The upsell.** Salespeople can get incentives for pushing certain models. So if you feel you're being steered toward a

particular mattress or extras (such as a mattress protector), you probably are. Go by our mattress performance scores, and stick with what best matches how you sleep.

• **The overhyped warranty.** Warranties usually cover only manufacturing defects, not normal wear. Sagging isn't usually covered unless it's at least 1½ inches deep.

Ratings: Mattresses

Scores in context: Of the 39 queen-size mattresses tested, the highest scored 74; the lowest, 32. All models are listed in order of performance.

☒ CR Best Buy ☒ Recommended

● Excellent ● Very Good ● Good ● Fair ● Poor

A. INNERSPRING

Recommended	Rank	BRAND & MODEL	PRICE	FIRMNESS		SCORE	TEST RESULTS						
				Claimed	Measured		Side Sleeping	Back Sleeping	Durability	Stabilization	Resists Bounciness	Eases Movement	Retains Warmth
<input checked="" type="checkbox"/>	1	Serta Perfect Day iSeries Applause ^①	\$1,075	Firm	Medium	72	●	●	●	●	●	●	●
<input checked="" type="checkbox"/>	2	Sealy Posturepedic Hybrid Trust Cushion ^①	\$1,075	Firm	Soft	71	●	○	●	●	●	●	●
<input checked="" type="checkbox"/>	3	Charles P. Rogers Powercore Estate 5000 ^②	\$1,500	Firm	Medium	71	○	●	●	●	●	●	●
<input checked="" type="checkbox"/>	4	Beautyrest Recharge Hybrid Jeffreys Bay ^①	\$1,800	Firm	Medium	70	●	●	●	○	●	●	●
<input checked="" type="checkbox"/>	5	Charles P. Rogers St. Regis Pillowtop	\$1,100	NA	Medium	68	○	●	●	●	●	●	●
<input checked="" type="checkbox"/>	6	Stearns & Foster Estate Scarborough Luxury Firm	\$1,575	Firm	Soft	66	○	●	●	●	●	●	●
<input checked="" type="checkbox"/>	7	Duxiana Dux 515 ^②	\$7,600	Firm	Soft	64	●	○	●	○	●	●	●
<input checked="" type="checkbox"/>	8	The Original Mattress Factory Orthopedic Luxury Firm	\$540	Firm	Soft	63	●	○	○	○	●	●	●
	9	Duxiana Dux 101 ^②	\$4,800	NA	Soft	61	●	○	●	●	●	●	●
	10	Serta iSeries Vantage ^①	\$1,300	Firm	Medium	60	○	○	●	●	●	●	●
	11	Stearns & Foster Estate Walnut Grove Luxury Firm ^①	\$1,575	Firm	Soft	60	○	○	●	●	●	●	●
	12	Saatva Luxury Firm Euro Pillowtop	\$900	Firm	Soft	60	○	○	●	●	●	●	●
	13	Ikea Sultan Holmsta ^②	\$550	Firm	Soft	58	○	●	●	●	●	●	●
	14	MacyBed Grand Plush Super Pillowtop 15" (Macy's)	\$910	Plush	Soft	57	○	●	●	○	●	●	●
	15	Beautyrest Recharge Castleton	\$1,850	Plush	Soft	55	○	●	●	●	●	●	●
	16	Shifman Anniversary Collection (Bloomingdale's)	\$3,025	Firm	Medium	52	○	○	○	●	●	●	●
	17	Ashley Sleep Destin Beach	\$1,000	Firm	Soft	44	●	●	●	○	●	●	●
	18	Stearns & Foster Megan-Rose Luxury Plush	\$1,575	Plush	Soft	42	●	●	●	●	●	●	●

^① Includes a layer of gel-infused foam.

^② Includes a latex-foam layer. ^③ Made of foam but not memory foam.

^④ Sold in either memory foam (firm) or latex (medium-firm).

Ratings continued on next page

Guide to the Ratings. Score is derived primarily from our evaluation of side and back support, durability, and stability. Note that results for adjustable air mattresses represent an average of firmness levels. **Side Sleeping** is the ability to keep the spine relatively horizontal on one's side. **Back Sleeping** is the ability to maintain the spine's natural curve on one's back. **Durability** gauges the ability to keep original shape, height, firmness, and side/back support after a simulated eight years of use. **Stabilization** indicates little or no bouncing transferred for innerspring, ease of movement and changing position for foam. **Firmness** compares claims with our measurements. ("NA" indicates no claim made.) Note that gel, if present, is infused into at least one layer of foam, including foam layers for innerspring. Price is approximate retail for queen size without box spring, \$150 to \$300.



Match the Mattress to How You Sleep

BEST FOR \$850 OR LESS

- **A8 The Original Mattress Factory** \$540 **CR Best Buy**
- **B4 Casper** \$850
- **C2 Sleep Number** \$700 **CR Best Buy**

All were impressive overall despite their lower prices. Choose A8 if you prefer an innerspring mattress and are willing to live with some bounciness and a bit more sagging over time. B4 offers freedom of movement among foam models. C2, the Sleep Number c2 Bed, scored almost as well as its pricier brandmate (the C1 Sleep Number i8 Bed) but has a much thinner foam layer on top.

BEST FOR COOL SLEEPING

- **A1 Serta** \$1,075 **CR Best Buy**
- **A2 Sealy** \$1,075 **CR Best Buy**
- **B2 Spring Air** \$1,200
- **B6 Ikea** \$1,000
- **C2 Sleep Number** \$700 **CR Best Buy**

These five didn't retain heat in our tests, and we judged all of them impressive in back or side support, or both.

BEST FOR COUPLES

- **A1 Serta** \$1,075 **CR Best Buy**
- **A4 Beautyrest** \$1,800
- **B4 Casper** \$850
- **B5 Bob's Discount Furniture** \$800
- **C2 Sleep Number** \$700 **CR Best Buy**

Some mattresses mute vibrations from one side of the bed to the other, helpful when one sleep partner is restless. Other mattresses, such as C2, let you adjust firmness on half of the bed at a time—or can be ordered with one half firmer than the other, such as B5. The others listed are the only ones in their categories to offer equally impressive side and back support.

Ratings: Mattresses

Scores in context: Of the 39 queen-size mattresses tested, the highest scored 74; the lowest, 32. All models are listed in order of performance.

☑ CR Best Buy ☑ Recommended

● Excellent ● Very Good ● Good ● Fair ● Poor

B. MEMORY FOAM

Recommended	Rank	BRAND & MODEL	PRICE	FIRMNESS		SCORE	TEST RESULTS						
				Claimed	Measured		Side Sleeping	Back Sleeping	Durability	Stabilization	Resists Bounciness	Eases Movement	Retains Warmth
☑	1	Serta iComfort Savant EverFeel ¹	\$1,800	Plush	Soft	67	○	●	●	●	●	●	●
☑	2	Spring Air Back Supporter Natalie (Costco)	\$1,200	Ultra Firm	Medium	64	○	●	○	●	●	●	●
☑	3	Tuft & Needle Ten ³	\$600	Firm	Medium	64	○	○	●	●	●	●	●
☑	4	Casper The Casper 10" ²	\$850	Firm	Medium	64	●	●	●	●	●	●	●
☑	5	Bob's Discount Furniture Bob-O-Pedic 11" Firm	\$800	Firm	Medium	63	○	●	●	●	●	●	●
☑	6	Ikea Morgongåva ^{2,3}	\$1,000	Firm	Medium	63	○	●	●	●	●	●	●
☑	7	Comforpedic iQ180	\$3,000	Firm	Soft	63	○	○	●	○	●	●	●
☑	8	Sleep Innovations 12-inch Gel Swirl ¹	\$750	Medium/Firm	Medium	62	○	○	●	○	●	●	●
	9	Novaform Altabella (Costco) ¹	\$1,300	Plush	Medium	61	●	●	●	○	●	●	●
	10	Ikea Myrbacka ⁴	\$550	Firm	Medium	61	○	○	●	●	●	●	●
	11	Night Therapy 14" Deluxe Grand Firm (Sam's Club)	\$510	Firm	Medium	58	○	○	●	○	●	●	●
	12	Serta iComfort Sleep System Genius ¹	\$1,375	Firm	Medium	58	○	●	●	●	●	●	●
	13	Serta iComfort Directions Acumen ¹	\$2,220	Firm	Soft	58	○	●	●	○	●	●	●
	14	Spa Sensations 10" Memory Foam SPA-1000Q	\$315	Firm	Medium	57	○	●	○	●	●	●	●
	15	Ikea Matrand ⁴	\$400	Firm	Medium	57	○	○	●	●	●	●	●
	16	Sealy Posturepedic Optimum Inspiration	\$1,775	Plush	Soft	52	○	●	●	●	●	●	●
	17	Ara 13" 100% Visco Memory Foam (Costco)	\$1,100	Plush	Soft	48	○	●	●	○	●	●	●
	18	Tempur-Pedic Cloud Supreme	\$2,400	Plush	Soft	32	○	●	●	○	●	●	●

C. ADJUSTABLE AIR

☑	1	Sleep Number i8 Bed ³	\$3,000	NA	Soft	74	●	●	●	●	●	●	●
☑	2	Sleep Number c2 Bed	\$700	Plush	Firm	72	●	●	●	●	●	●	●
	3	Tempur-Pedic Tempur-Choice Supreme	\$3,200	Medium/Soft	Medium	63	●	○	●	●	●	●	●

¹ Includes a layer of gel-infused foam. ² Includes a latex-foam layer. ³ Made of foam but not memory foam.

⁴ Sold in either memory foam (firm) or latex (medium-firm).

Match the Mattress to How You Sleep

BEST FOR BACK SUPPORT

- **A3 Charles P. Rogers** \$1,500
- **C1 Sleep Number** \$3,000
- **C2 Sleep Number** \$700
CR Best Buy

These three offered the most back support, though you could do better than the innerspring A3 if you often roll onto your side. Paying more for the adjustable air C1 buys the softest of the three mattresses, though it tends to retain warmth. Several other innerspring and foam models scored well in our back-support tests.

BEST FOR SIDE SUPPORT

- **A2 Sealy** \$1,075 CR Best Buy
- **A8 The Original Mattress Factory** \$540 CR Best Buy

These are among many that delivered impressive support for side sleepers, resisted bounciness, and allowed easy turning.

Sleep Smart: Screens vs. the Sandman

Ninety percent of Americans use some type of electronics within an hour of bedtime at least a few nights per week, according to a recent survey. The problem with that? The blue light in the backlit screens of electronic devices fools the brain into thinking it's daytime. And the smaller the screen, the closer you hold it to your eyes, which concentrates the light.

If you must use electronics right up until bedtime, consider a pair of blue-light blocking glasses, which may help reverse the effects on melatonin levels. In one study orange-lens glasses helped reduce blue-light levels reaching your eyes.

Even if you don't use electronics before bed, light from a bedside lamp can affect sleep. Bulbs with a warmer color temperature, about 2,700 kelvins, tend to emit the least blue light. The Definity Digital Good Night LED, \$70, emitted less blue light than other LEDs in our tests. It replaces a 60-watt bulb.



Saving and Shopping Tips

1 KEEP YOUR OLD MATTRESS GOING

Once your mattress is about 10 years old, start thinking about a replacement. In the meantime, you can flip or rotate some older inner-springs to address minor dips. And if your mattress is newer and doesn't have significant sagging, you might get away with adding a mattress topper. If you're waking up achy, simply try a new pillow first.

2 TRY LYING BEFORE BUYING

Lying down on a mattress in a store can feel awkward, but more than 80 percent of subscribers we surveyed who'd done so told us they were satisfied with their purchase. Spend at least 15 minutes on a mattress. Shift positions and lie on your sides,

back, and stomach, depending on how you sleep. But don't write off online sellers or other stores just because tryouts aren't possible; you might be passing up a bargain. (See "Warehouse Clubs and Web Sellers: No Showrooms, No Risk," at right.)

3 CONSIDER NEGOTIATING

Many businesses, such as warehouse clubs, have fixed prices that won't budge. But for retailers that do negotiate—particularly specialty chains—huge markups let them lower prices by 50 percent or more during their frequent sales. Unless you're switching from an innerspring to a foam or adjustable air mattress, you might also save \$150 or more by keeping your old foundation (a box spring

or other type of base, depending on what kind of bed you have). One strategy: Any time of year, insist on a sale price for a mattress you know you want, and don't be afraid to walk out if you feel you're getting a raw deal.

4 ASK ABOUT RETURNS

Ask about trial periods, return policies, and restocking and pickup fees before buying. Most companies let you sleep on a mattress for 30 to 60 days before deciding to return or exchange it, but it helps to confirm that before buying. Keep in mind that many sellers will charge a 15 to 25 percent restocking fee on top of shipping, though you might at least be able to save on shipping by driving the mattress back yourself.

Warehouse Clubs and Web Sellers: No Showrooms, No Risk

We usually advise you to lie on any mattress you're considering for at least 15 minutes. But because warehouse clubs display mattresses standing up and websites offer only pictures and descriptions, you need to rely on those companies' return policies. And from our research, buying from them is fairly low-risk. A few examples from sellers featured in our Ratings:

COSTCO. This warehouse club received the second-highest satisfaction score from readers in our survey of subscribers' experiences with mattress stores. Costco doesn't say outright what its return policies are for mattresses, but from what we can tell, the company aims to satisfy and won't charge for shipping and handling if you contact them within a reasonable period of time, such as a few months after purchase. That goes for the website and the stores. You don't need to save the box.

CASPER. If you really need to try the company's mattress, you'll have to go to the Casper Apartment in New York City (currently its only physical showroom). Casper offers just one model in six sizes. Otherwise, you get 100 nights to decide whether to keep it. If not, Casper will let you exchange or return it for your money back with no restocking or other fees. Shipping is free, too.

TUFT & NEEDLE. You can try both mattress models that Tuft & Needle offers at its showroom in Phoenix, and it has a 30-night trial period. No mattresses actually go back to the company; instead, you're asked to donate it to a charity and show the seller the receipt for a full refund—or full credit toward an exchange. (If no charity is nearby, the company will arrange to have the mattress picked up.) No need to save the packing materials.

SCAM OF THE MONTH

Don't Get Nailed by a Contractor

These slippery tactics could cost you a bundle

NOW THAT WARMER WEATHER is here, your thoughts naturally turn to all of the around-the-house projects soon to occupy your weekends. Certainly a little help wouldn't hurt, but be careful whom you hire: Along with the crocuses, spring is also the season when crooked contractors start popping up everywhere.

There are many variations on the scheme. Some home-improvement scammers show up at your door offering to repair your roof, repave your driveway, or do whatever other chore you need for a price that seems fair. They ask for payment in advance but then do either shoddy work or none at all. It can be difficult to catch and prosecute these con artists. Even so, in the state of New Jersey alone, officials are seeking more than \$2.1 million in consumer restitution and penalties from 130 contractors accused in 2014 of performing poor work or leaving projects unfinished. Here's how to protect yourself:

- **Get recommendations.** Avoid contractors that contact you unsolicited. Don't hire a contractor based solely on an ad in a local

newspaper, even if you're offered a big discount or another incentive. Get recommendations from friends, neighbors, or relatives.

- **See what others are saying.** Before hiring a contractor, check his or her work history with your state consumer protection agency (go to usa.gov/directory/stateconsumer for a list) and the Better Business Bureau (bbb.org/council). Search the Web using the company or individual's name and such words as "reviews" and "complaints."

- **Check credentials.** Verify with your state that the contractor has the required license or registration. Some states have funds that reimburse consumers who obtain judgments against licensed contractors.

- **Know your rights.** Some states give consumers three days or so to cancel home-improvement contracts. Under federal law you have three days to cancel most contracts that are signed in your home or outside the contractor's regular place of business.

- **Get everything in writing.** Don't rely on spoken promises. Demand a written contract, and get all warranties in writing, too.

5 Red Flags That It Could Be a Scam

1

HE JUST HAPPENS TO BE IN THE AREA

He knocks on your door and says he can offer you a great deal because he's working nearby and has leftover material. It's a ruse.

2

THE DEAL IS GOOD TODAY ONLY

He says you must act immediately to get his special offer. Don't let him muscle you into making a decision without doing your homework.



3

YOU HAVE TO PAY UP FRONT

He demands you pay a substantial amount before work commences. It's a sign that he's out to rip you off or that he's in financial trouble and has no credit to buy supplies.

4

HE LACKS PROFESSIONALISM

He's hard to reach: He has no address, his vehicle is unmarked, and there's no info on him at the Better Business Bureau, or anywhere.

5

YOU'RE TOLD YOUR SAFETY IS AT RISK

He creates a sense of urgency by saying you may be in danger unless he makes immediate repairs. Contact authorities if you have concerns.

RECALL



STEERING FAILURE

General Motors is recalling almost 70,000 cars because the electronic power steering may fail, posing the risk of a crash.

The vehicles involved are certain 2006-07 Chevrolet Malibu and Malibu Maxx models, as well as the 2006-07 Pontiac G6. The recall expands the scope of one announced last year that affected more than 1.3 million vehicles with a similar problem. General Motors says that further investigation found some other manufacturing problems that contributed to the recall.

GM will notify owners, and dealers will make repairs free of charge. Owners may contact Chevrolet customer service at 800-222-1020 or Pontiac customer service at 800-762-2737.

WE TRIED IT

Can Downy Really Remove Wrinkles?

THE CLAIM If you've ever picked up a shirt to wear, only to toss it back because it's wrinkled, Downy promises a solution with its Wrinkle Releaser Plus. The spray-on fabric-care product comes with a claim that "no wrinkle is a match for the silicon power of Downy Wrinkle Releaser Plus."

THE TEST We filled a basket with rayon-knit blouses, blended-fabric sweaters, 100 percent cotton shirts, and assorted fabric swatches. We topped it off with a 5-pound weight and let the fabrics sit overnight. The next day, the very wrinkled clothes and swatches were put on hangers. We followed the directions, which said to spray the clothes until lightly damp, then smooth as needed.

THE BOTTOM LINE Smooth move! The wrinkles disappeared before our eyes. It wasn't quite as good as when we used a hot iron, but who has time for that? The spray worked best on synthetic and blended fabrics; the cotton shirts needed some ironing.

Make Your Music Sound Better

THERE'S BEEN A BIT OF A PARADOX in the world of consumer audio for the past few years. Customers are springing for pricey headphones and wireless speakers that are capable of providing great sound. But at the same time, they're ditching CDs and high-quality digital downloads in favor of streaming audio, which can be lower quality, from services such as Pandora and Spotify. Audiophiles have rebelled and are now embracing new high-resolution digital-audio formats and players that are promised to deliver greater fidelity.

So what does it all mean to the everyday music lover willing to spend a little money to get great sound but confused by all of the formats, services, and crazy lingo of the audio world? We've crunched the numbers on streaming services, found some great gear, and tested standard music files vs. fancy new formats. We also had experts and amateurs listen so that we could bring you some answers.

Why sound quality has dropped

Audio streaming services have become enormously popular. Streams rose almost 55 percent last year, while sales of CDs and digital downloads fell 15 percent and 13 percent, respectively, according to research firm Nielsen. And streaming can be a pretty sweet deal. Instead of the limited number of songs that fit in your phone's memory, a streaming



service can run in apps on your phone, tablet, or computer, and put millions of tunes at your fingertips at little or no cost (see below).

But streaming audio raises a serious question for music lovers: Are you sacrificing quality for convenience? Some music fans—including rocker Neil Young, who's backing the Pono high-res player and service—believe that sound quality has been on the decline since the CD replaced the LP. Others consider that shiny disc the benchmark for top audio

quality because it was designed to capture all frequencies to the limits of human hearing.

Both camps agree that streaming music and highly compressed AAC and MP3 files—the most commonly used download formats—generally don't measure up to CDs (or, some would argue, vinyl) for sound quality. Compressed files remove data, and with music files the more data you lose, the less audio fidelity you get. That has spawned a push for high-res audio that promises a better-than-CD listening experience. But

Comparing Streaming Music Services

Online services differ in audio quality, musical offerings, features, and price. See which is the best choice for you.

Service	Free Version	Paid Subscription	Range of Audio Formats	Songs in Library	Compatible With ...	Worth Noting
Beats Music	No	\$10/month or \$100/year	64 Kbps AAC-320 Kbps MP3	More than 20 million	Android, Apple iOS, Windows Phone	Beats' initiation process analyzes your musical tastes based on age, gender, and the listening choices you make. Beats was acquired by Apple, so expect a revamped launch soon.
iTunes Radio	Yes	\$25/year for iTunes Match	256 Kbps AAC	NA*	Apple iOS, PC with iTunes	Subscribing to iTunes Match lets you get iTunes Radio without advertising.
Pandora	Yes	\$5/month or \$55/year	64 Kbps/192 Kbps AAC paid	1.5 million	Android, Apple iOS, BlackBerry, Kindle Fire, Nook, Windows Phone	"Discovery" feature finds artists and songs similar to those you like. Can create up to 100 unique stations.
Rdio	Yes	\$10/month	64-192 Kbps/320 Kbps AAC paid	32 million	Android, Apple iOS, BlackBerry, Windows Phone	Rdio users can now choose among streaming bit rates of 64 Kbps, 96 Kbps, and 192 Kbps in the settings menu.
Spotify	Yes	\$10/month	96-160 Kbps/320 Kbps paid (all Ogg Vorbis)	More than 30 million	Android, Apple iOS, BlackBerry, Windows Phone	Lower 96-Kbps option for mobile users wanting to limit usage. Free mobile users can't listen to songs on demand and can skip only five tracks per hour.
Tidal	No	\$20/month	96 Kbps AAC-1,411 Kbps FLAC/ALAC	More than 25 million	Android, Apple iOS	This CD-quality audio streaming service lets you save songs to your device for listening offline.

*Apple declined to disclose the number of songs.

embracing high-res audio isn't simple or cheap. High-res files tend to cost at least twice as much as regular downloads, and you need a player designed for the format.

There's a lot of debate over the merits of high-res audio (see the facing page), so we decided to see for ourselves. We had our expert engineers as well as staffers with no audio expertise compare high-res music to song files we downloaded from iTunes. The results show that the music files you listen to and your equipment can make a difference, but you'll have to listen carefully to hear it.

The \$10 upgrade

Even if you're not interested in buying in to a new audio format, you can still improve your listening experience. One of the most effective steps you can take is buying new headphones or speakers. (See our suggestions at right.)

Just \$10 or \$20 can get you earphones that did well in our tests, offering a big upgrade from the cheap earbuds that come with many devices. For \$100 or so, you can get headphones with excellent sound. Just don't get suckered into buying special "high res" headphones; any great-sounding pair will do.

A good wireless speaker system will range in price from less than \$100 to several times that. But you don't need to go too high-end to get high-quality sound. A few of the models we recommend are modestly priced.

There are two types of wireless speakers: Bluetooth and Wi-Fi. Both will let you play music from mobile devices, and some provide direct access to streaming services and Internet radio stations.

Each type has its advantages. Bluetooth speakers have a 30-foot range. Many have rechargeable batteries that let you take them almost anywhere. All smart phones and many tablets support Bluetooth, and some have NFC (near field communication) technology for pairing devices simply by tapping them together.

Wi-Fi models are designed primarily for home use and are able to play songs from multiple devices on your network. Wi-Fi speakers have a greater range than Bluetooth models, and you can send music to several speakers at once, even in different rooms. But configuring a Wi-Fi speaker to work with your network isn't as easy as pairing Bluetooth devices. Also, there are competing and incompatible wireless standards (Apple's AirPlay, Sonos, and proprietary systems from LG and Samsung), and once you buy in to one, you're stuck with it.

In the end, there is no perfect audio source or setup (except, perhaps, a band sitting right in front of you). Just spend your money wisely, and have faith in the best audio equipment you already own—your ears.

The Right Gear for Your Ear

Choose the right device and streaming service to match your audio profile

LISTENING LIFESTYLE

TOP PICKS

Sound Hound

You know the type, still weeping into the protective covers of their 180-gram, remastered vinyl over how bad MP3s sound. If that describes you, you might well be among the first to get a high-res audio player. Pair it with a Sony speaker that supports 192-kHz/24-bit high-res audio via its USB port. The over-ear Grado headphones top our Ratings with excellent sound, and Tidal is a new service with CD-quality streaming.

► **Speaker:**
Sony SRS-X9 Wi-Fi and Bluetooth speaker, \$700

► **Headphones:**
Grado Prestige SR325e, \$300

► **Streaming Service:**
Tidal, \$20/month

Deal Hunter

Do you get as much of a kick from a great deal as you do from a great song? TDK's rugged speaker is our highest-rated Bluetooth model that costs less than \$100. Another deal: Panasonic in-ear earphones, which offer very good sound for about the price of two lattes. Pandora's free ad-supported streaming service is a great way to discover new artists similar to those you like. (For \$5 per month, you can skip ads.)

► **Speaker:** **TDK Life** on Record Wireless Weatherproof Speaker (A33), \$90

► **Headphones:**
Panasonic RP-TCM125, \$10

► **Streaming Service:**
Pandora, free

Tuneful Traveler

This Bluetooth speaker from Bose, offered in five colors, offers good sound and surprising power, and is small enough for your carry-on. The SMS Audio over-ear noise-canceling headphones have very good sound and excellent noise reduction for about \$100 less than bigger-name brands. Beats Music is a great on-the-go choice. There are no ads, and you can download songs to enjoy when you're not near Wi-Fi.

► **Speaker:**
Bose SoundLink Color, \$130

► **Headphones:**
SMS Audio Street by 50-ANC, \$180

► **Streaming Service:**
Beats Music, \$10 per month

Casual Listener

If you're not an audiophile but still care about sound, here's your game plan. The Sonos speaker sounds great, and you can add speakers to create a whole-home system. The Onkyo earphones are well priced and offer very good sound. The free version of Spotify is great; the premium version has no ads and better sound quality, and lets you play songs on demand.

► **Speaker:**
Sonos Play:1, \$200

► **Headphones:**
Onkyo IE-FC300, \$100

► **Streaming Service:**
Spotify, free or \$10 per month

How Big? 4-Minute Songs per GB of Space.



76 SONGS

AAC (Advanced Audio Coding) 256
Lossy compressed file (typical iTunes download).
13MB per song.



27 SONGS

WAV (Waveform Audio File)
Uncompressed CD-quality file.
37MB per song.



7 SONGS

FLAC (Free Lossless Audio Codec)
Compressed high-res file.
142MB per song.



5 SONGS

AIFF (Audio Interchange File Format)
Uncompressed high-res file.
218MB per song.

Potent Portables

We checked out three players designed for high-res music. Here's how they stack up.

► Sony NWZ-A17 Hi-Res Walkman \$300



The NWZ-A17 is the lowest-priced and smallest of this trio, so it will fit easily in a pocket or bag. The attractively styled player has a 2.25-inch color LCD screen. It comes with 64GB of built-in memory; you can add up to 128GB more via a microSD slot. The player supports MP3, AAC, WMA, WMA Lossless, AAC, FLAC, AIFF, WAV, and ALAC files—but not Sony's own DSD—with audio resolutions up to 192 kilohertz/24 bits. It has an FM tuner and Bluetooth and NFC technology. Unlike the other players, it can't be hooked up to a computer as a digital-to-analog converter (DAC).

► Pono PonoPlayer \$400



The PonoPlayer's wedgelike shape makes it almost impossible to stuff into a pocket, but it provides a stable base and good viewing angle when set on a table. It has a 2.5-inch touch screen, and it has 64GB of memory plus a 64GB card in a microSD slot (expandable to 128GB). The Pono supports most file formats, including DSD, with playback up to 192 kHz/24 bits. One of its two 1.8-inch audio jacks can be used as a regular headphone jack and the other as a line out to a home system. You can also use two sets of headphones at once or—if you have really fancy gear—one pair with balanced audio inputs.

► Astell and Kern AK100II \$900



This is the priciest of the three players, and it looks it, with a brushed-aluminum design and a handsome carrying case. Unlike most digital players, it has a knob that adjusts volume in precise increments, and the 3.3-inch OLED touch screen is the largest and best of those we tried. Like the other players, it has 64GB of internal memory and takes a 128GB microSD card. The player supports all of the formats mentioned plus OGG. It has Bluetooth and Wi-Fi, and includes music-streaming software. Like the Pono, it can be used as a USB DAC, and it has standard and balanced audio outputs.

Is High-Res Audio Really Worth the Extra Money?

TVs, phones, and tablets can present beautiful video that has gotten steadily better in recent years. But audio quality has gone up and down, and some listeners believe it's now worse than it was 10 or 15 years ago.

One of the most vocal critics is rock legend Neil Young, who believes digital audio is missing something and is pushing for “high resolution” audio. We recently bought three high-res players and listened to regular and high-res songs.

FILE SIZE AFFECTS QUALITY

The most widely used digital music formats, MP3 and AAC, were developed in the '90s as a way to shrink the size of a CD recording to make it easier to store and download. Both files use “lossy” compression, meaning bits of data—presumably those you'll miss least—are permanently removed. The more data that's removed, the smaller the file but the greater the likelihood that the sound will be noticeably degraded. Higher bit-rate AAC and

MP3 files have less information removed, so the files are larger, but they'll sound more like a CD.

Young and others are championing high-res audio, or better-than-CD sound, which some have likened to 4K TV for the ears. “Lossless” compressed files, such as ALAC (Apple Lossless Audio Codec) and FLAC (Free Lossless Audio Codec) maintain all of the original information when a song is uncompressed, so they should sound exactly the same as the source material. The downside is that they're considerably larger than AAC and MP3 files (see the graphic on the facing page).

You can get high-res songs and albums from several websites, including Acoustic Sounds, HDtracks, and PonoMusic. Higher-quality downloads are pricey, about \$20 to \$25 for an album, compared with \$10 for a typical iTunes album.

You need special gear to play high-res audio. Players range in price from \$100 to well over \$1,000. A handful of compatible

smart phones from LG, Samsung, and Sony—and some software, such as Winamp—support high-res files.

REAL-LIFE LISTENING TESTS

The big question, of course, is whether most listeners can hear a difference. To find out, we compared the sound quality of high-res files to CD-quality WAV files and songs downloaded from Apple iTunes (compressed 256-kilobit-per-second AAC files). We played the high-res tracks on the players above, and the CD-quality and iTunes downloads on the fifth-generation Apple iPod Touch.

Our experts listened to the players through our high-quality audio system and through three sets of headphones: the \$300 Grado Prestige SR325e, our top-rated model, with excellent sound quality; the \$80 Grado Prestige SR60e, which have very good sound; and the \$75 Harmon-Kardon CL, which scored slightly lower but are still very good. Then 10 staffers with

no audio expertise listened to the same music on the Grado Prestige SR325e headphones.

THE VERDICT

The audio engineers could sometimes hear a bit more detail and clarity in high-res files compared with CD-quality and compressed audio files. The subtle differences were most noticeable using the audio system and the Grado Prestige SR325e headphones, less so on the SR60e, and barely perceptible on the Harmon-Kardon CL headphones. Most of the regular staffers also thought the high-res files sounded better, from a little better to significantly so, though they really had to concentrate to pick up on the differences.

Given the small difference in quality and big difference in price and storage, high-res audio is probably not worth the splurge for casual listeners who store music on a portable device and listen through average gear. It might make sense for audiophiles. Listen yourself before you decide.

AMERICA'S BEST, FRESHEST SUPERMARKETS

And the worst, too. ... Today, shoppers want high-quality fruits, vegetables, and store-made meals. We found the stores that provide them, and those that fail. See how *your* grocer stacks up.

WHAT MAKES a supermarket great? Years ago, the answer might have been low prices, checkout speed, or variety. Now another consideration is top-of-mind: “fresh.”

When the typical shopper makes each of 83 yearly grocery trips (running up an annual tab of about \$5,400), he or she is demanding a wider-than-ever choice of healthy, unprocessed fruits, vegetables, meat, and fish—as well as more organics and local produce. The clamor for “fresh” also extends to freshly prepared meals that can be taken home.

So when we at Consumer Reports did our annual supermarket survey, we asked

readers to rate their grocers on traditional characteristics such as service and cleanliness—but we also asked them to rate the selection of local produce and the price of organics at their stores.

We received responses from 62,917 subscribers, crunched the numbers, and discovered that the “freshest” stores tend to be the best stores overall, too. So Wegmans, a top-rated store since 2005, also gets top marks for freshness; longtime bottom-of-the-barrel Walmart Supercenter gets some of the lowest scores for freshness.

Why Shoppers Got Fresh

For many Americans, food is the new medicine: We believe we can eat our way

to good health. As a result, consumers have become increasingly savvy label readers, wary of preservatives, chemicals, and unpronounceable ingredients. It's no surprise, then, that since 2007 the demand for minimally processed foods with shorter ingredients lists has risen significantly, according to The Hartman Group, a consumer research firm.

“There has been a tremendous evolution in the term ‘fresh’ as it applies to supermarkets,” says food-industry expert Richard George. For years, supermarket-industry insiders have lamented the decline of the “center store,” a euphemism for the middle aisles stocked with bagged, boxed, and heavily advertised products.

FOOD=HEALTH
95 percent of chains now have a dietitian.

WE LOVE 'LOCAL'
More than 75 percent of stores say they carry more locally grown or made goods than they did in 2012.



**KNOW YOUR FARMER**

Some stores display names and photos of their suppliers.

THE ORGANIC PREMIUM

We paid 47 percent more, on average, for a variety of organic products. But some organics actually cost less. See page 28.

“There’s a growing rejection of overly processed and packaged foods, especially among younger consumers,” says Jim Hertel, managing partner at supermarket-industry consultant Willard Bishop. “They’re suspicious about food additives and so sure ‘less is more’ that they buy gluten-free even if they’re not allergic to gluten.”

On the flip side, Hertel says, young people who have grown up with higher-quality fast-casual restaurants, including Panera and Chipotle, “know quality food doesn’t have to cost an arm and a leg.”

Supermarkets are taking seriously their new role in the health of their customers. In the 1980s, just two chains had a registered dietitian. Today, dietitians influence

merchandising and marketing decisions in 95 percent of chains. Some stores participate in nutrition-scoring programs such as NuVal (available at Kroger, Price Chopper, and other chains); others, like Whole Foods Market, publicize food-safety commitments that include stocking only antibiotic-free meat.

Consumers’ food-safety concerns have also prompted stores to carry more locally sourced selections, Hertel adds. Some chains even display the names of their local producers, along with their family photos. Says Hertel: “There’s a sense of ‘we know them, we know their operations, and we trust them, so you should, too.’”

The growth of farmers markets—a fourfold increase nationwide in two

Top Grocers— and the Bottom

The chains in each category below are ranked in order of overall shopper satisfaction.

Freshest

Chains rated excellent or very good for produce and meat/poultry quality:

1. Wegmans
2. Publix
3. Raley’s
4. Sprouts Farmers Market
5. The Fresh Market
6. Hy-Vee
7. H-E-B
8. Whole Foods Market
9. Harris Teeter
10. Dillons
11. QFC

Cleanest

Chains rated excellent for cleanliness:

1. Wegmans
2. Publix
3. Trader Joe’s
4. Raley’s
5. The Fresh Market
6. Hy-Vee
7. Whole Foods Market
8. Harris Teeter

Best Bakeries

Chains rated excellent for in-store bakery:

1. Wegmans
2. Publix

Cheapest for Organics

Chains rated excellent or very good for prices of organic options:

1. Trader Joe’s
2. Wegmans
3. Costco
4. Sprouts Farmers Market

Lowest Overall

Chains that received low scores for overall satisfaction:

1. Walmart Supercenter
2. Waldbaum’s
3. A&P

decades—is also a factor, says Judy Harrison, a professor in the foods and nutrition department at the University of Georgia. She says that many people are likely to think local produce is fresher and maybe safer (though there's no data to back up the notion), as well as more environmentally friendly because it has not been transported as far.

Though the jury's out on how eating locally connects to health, there's no question that fresh, unprocessed food is better for you than choosing a prepared meal high in sodium and fat from the freezer aisle of a supermarket.

The Supermarket as Restaurant

What, then, explains the rising demand for store-prepared meals? "We're increasingly time-starved," says Sean Coary, a professor of food marketing at Saint Joseph's University in Philadelphia. "Purchasing store-made meals buys time for the family." To capture those "5 o'clock" shoppers (industry-speak for consumers prone to

last-minute meal decisions), many grocers are developing ready-to-eat entrées, salads, sandwiches, and sushi. Some even bring a restaurant feel into the experience.

Mariano's, a Chicago-area grocery chain, is a good example: Many of its locations offer a sit-down sushi bar, oyster bar, and wine bar. And shoppers can head home with a wood-fired pizza or even a grilled-to-order steak from the butcher.

Television also influences eating patterns and food cravings, Coary says. "Once there was only Julia," he adds, saluting pioneering TV chef Julia Child, who expanded our vistas to new recipes and fresh ingredients. "Now entire networks are devoted to food. Food's all around us."

Who's Fresh—and Who's Not

Why can't all stores be like Wegmans? The chain got top marks in our survey for freshness, baked goods, and overall shopping experience.

"It's going to sound cliché, but our employees are our secret sauce," says Jo

Natale, Wegmans' vice president of media relations. Natale also points to the fact that the chain is family-owned, not publicly traded, which "allows us to take a long-range view, invest in people, and grow at a controlled rate."

Nationwide, stores need to do a much better job when it comes to fresh offerings. Only around six in 10 shoppers were completely or very satisfied with the quality of their store's produce, meat, and poultry offerings. (And about 50 percent of respondents were highly satisfied with their store's prepared food and bakery items.)

Just three of the 68 chains—Wegmans and national chains The Fresh Market and Whole Foods—earned stellar produce scores. Seventeen were below average. Eighteen retailers received low scores for produce variety, notably two big warehouse clubs—Sam's Club (part of Walmart), and BJ's Membership Club (in the East)—as well as Target and Target Supercenters.

Standouts for prepared foods were Wegmans, Publix, Costco, Whole Foods, and Fresh Market. Pathmark and Waldbaum's, in the Northeast, and Aldi, in the eastern U.S., received low marks in that category.

Aldi is an anomaly: a highly-ranked chain earning low scores for most perishables. In fairness, those products aren't a priority at the chain, which specializes in low prices. Aldi carries 1,300 of the most commonly purchased grocery items sold under their private label brands, spokeswoman Liz Ruggles says. (A mainstream supermarket stocks around 44,000 items.)

And what of Walmart, consistently one of our lowest-rated grocers dating back to 2005? This year, the nation's largest grocer—the primary shopping destination for 10 percent of those surveyed—earned low marks in every category other than price. We contacted the company for comment and received a statement that CEO Doug McMillon originally gave at an investors meeting last October:

"Every store I go in has room to improve. I can take you to stores right now and we can walk out of that store with a list of things that we can go do better. And if we nail those, one store at a time, our short-term performance gets better."

OK, Walmart, we'll be watching.

This Chicken Is Cheaper to Buy Than to Make Yourself

Buying a cooked meal from your favorite supermarket isn't only a time-saver; it can be a bargain, too. And no entrée is priced more aggressively than rotisserie chicken, which we found for as little as \$4.99 whole at multiple stores, including Costco, Price Chopper, ShopRite, and Walmart. That's less than you'd pay for an uncooked bird—a deal tough to pass up.

And that's the point: broad appeal and an immediate sensory impact. "It's a universal head-turner that every shopper can relate to," says David Morris, a food-service analyst for market research firm Packaged Facts.

Chains make up for the entrée's low price with sides such as macaroni and cheese and mashed potatoes, which are sold by the pound and generate higher profits. "It's an extra turn of the wheel



THE \$4.99 MEAL

Stores entice shoppers with this ready-made bargain and make a profit on the sides.

to attract shoppers into the store and cross-sell them," says Mona Golub, a vice president at Price Chopper.

To see whether other prepared foods are cheaper to buy than to make, we bought chicken marsala, eggplant parmesan, and meatloaf from a local Stop & Shop, then had our food experts make the dishes

from scratch. For a fair cost comparison, we used Stop & Shop's own store-brand ingredients for our recipes.

In the end, on a price-per-portion basis, the chicken marsala was \$1.94 less to make, per serving; the eggplant parmesan, \$1.36 less; and the meatloaf, 44 cents less. The homemade versions tasted better, too.

	Store	Overall Reader Score	Specific Results					
			Freshness				Store Quality	
		Based on a Scale of 0-100	Produce Quality	Meats/Poultry Quality	Bakery Quality	Store-Prepared Food Quality	Staff Courtesy	Store Cleanliness
35	Bashas'	77	○	○	●	○	●	○
36	Marsh	77	○	●	○	●	●	●
37	Piggly Wiggly	77	○	○	○	○	●	○
38	Tom Thumb	77	○	○	○	○	○	●
39	Giant (PA)	76	○	○	○	○	○	●
40	Cub Foods	76	○	○	○	○	○	○
41	Shoppers Food & Pharmacy	76	●	●	○	○	○	○
42	BJ's Wholesale Club	76	●	○	○	○	●	○
43	Big Y	76	○	○	○	●	●	●
44	Ralphs	75	○	○	○	○	○	●
45	Target/SuperTarget	75	●	●	●	●	○	●
46	BI-LO (GA, NC, SC, TN)	74	○	○	●	○	○	○
47	Sam's Club	74	●	○	○	○	●	○
48	Brookshire's	74	○	○	○	○	●	●
49	Vons	74	○	○	○	○	○	●
50	Albertsons	74	○	○	○	○	○	●
51	Price Chopper (Northeast)	73	○	○	○	○	○	○
52	Food Lion	73	●	●	●	●	○	○
53	Weis	73	○	○	○	○	○	○
54	Giant Eagle	72	○	○	○	○	○	●
55	Winn-Dixie	72	●	○	●	○	○	○
56	Giant (DC, DE, MD, VA)	71	●	○	●	○	○	○
57	Randalls	71	○	○	○	○	○	●
58	Safeway	71	○	●	○	○	○	○
59	Jewel-Osco	70	●	●	○	○	○	○
60	Stop & Shop	70	●	●	●	○	●	○
61	Acme	70	●	○	●	○	○	○
62	Pick 'n Save	69	●	●	○	○	●	○
63	Tops Markets	67	●	●	●	●	●	○
64	Shaw's	67	●	●	●	○	○	○
65	Pathmark	66	●	●	●	●	●	●
66	A&P	64	●	●	●	●	●	●
67	Walmart Supercenter	64	●	●	●	●	●	●
68	Waldbaum's	64	●	●	●	●	●	○

CONSUMER REPORTS **27**

Organics: How Much You'll Pay

Consumer Reports shopped at select grocers, comparing a market basket of conventional items to their organic counterparts. We sought identical brands and sizes, when available, and otherwise chose similar goods. We then calculated cost on a unit-price basis (per pound, per dozen, etc.). Blank columns mean both options weren't available. The bottom row shows the average higher cost of the entire selection of 15 organic products, compared with conventional counterparts. (Note: Only nine products are listed here. For the complete study, go to ConsumerReports.org/cro/goingorganic.)



Item	Price Chopper	Walmart	Safeway	Harris Teeter	Whole Foods Market	Peapod	Amazon Fresh	Fresh Direct
Bananas								
Regular	\$0.59/lb.	\$0.58/lb.	\$0.48/lb.	\$0.65/lb.	\$0.79/lb.	\$0.39/each	\$0.89/lb.	\$0.88/lb.
Organic	\$0.79/lb.	\$0.78/lb.	\$0.79/lb.	\$0.89/lb.	\$0.99/lb.	\$0.53/each*	\$0.99/lb.	\$0.99/lb.
% More	34%	34%	65%	37%	25%	36%	11%	13%
Baby Carrots								
Regular	\$1.33/lb.	\$1.68/lb.	\$2.19/lb.	\$1.69/lb.		\$1.66/lb.	\$1.99/lb.	
Organic	\$1.99/lb.	\$3.48/lb.	\$2.19/lb.	\$1.69/lb.*		\$2.49/lb.	\$1.99/lb.	
% More	50%	107%	0%	0%		50%	0%	
Apples								
Regular	\$1/lb.		\$1.83/lb.	\$1.66/lb.		\$1.66/lb.	\$1.66/lb.	\$1.66/lb.
Organic	\$1.20/lb.*		\$2.20/lb.	\$2.33/lb.		\$2/lb.	\$2/lb.	\$2.66/lb.
% More	20%		20%	40%		20%	20%	60%
Strawberries								
Regular	\$2.99/lb.		\$4.39/lb.		\$4.99/lb.	\$2.50/lb.	\$4.99/lb.	\$5.99/lb.
Organic	\$4.99/lb.*		\$7.69/lb.		\$6.99/lb.	\$4.99/lb.*	\$6.99/lb.	\$7.99/lb.
% More	67%		75%		40%	100%	40%	33%
Grade A Maple Syrup								
Regular	\$11.99/pint	\$10.21/pint	\$11.84/pint	\$9.77/pint	\$11.99/lb.	\$10.88/pint	\$13.60/pint	
Organic	\$10.65/pint	\$11.84/pint	\$16.97/pint	\$11.98/pint	\$11.72/lb.	\$10.08/pint*	\$20.32/pint	
% More	-11%	16%	43%	23%	-2%	-7%	49%	
Extra Virgin Olive Oil								
Regular	\$16.08/quart	\$8.98/quart	\$8.64/quart	\$8.50/quart	\$13.24/quart	\$9.92/quart	\$11.20/quart	\$11.28/quart
Organic	\$17.02/quart	\$10.87/quart	\$13.44/quart	\$9.01/quart*	\$13.24/quart	\$12.48/quart	\$13.12/quart	\$15.05/quart
% More	6%	21%	56%	6%	0%	26%	17%	33%
Milk								
Regular	\$2.99/half gallon	\$2.20/half gallon	\$2.69/half gallon	\$2.59/half gallon	\$2.39/half gallon	\$2.49/half gallon	\$2.99/half gallon	\$2.79/half gallon
Organic	\$3.99/half gallon	\$3.88/half gallon	\$3.49/half gallon*	\$4.19/half gallon	\$3.99/half gallon	\$4.09/half gallon	\$3.58/half gallon	\$3.99/half gallon
% More	33%	76%	30%	62%	67%	64%	20%	43%
Large Brown Eggs								
Regular	\$2.49/dozen	\$2.68/dozen	\$4.39/dozen	\$2.19/dozen	\$2.99/dozen	\$3.29/dozen	\$3.59/dozen	\$3.19/dozen
Organic	\$4.99/dozen	\$4.68/dozen*	\$4.99/dozen	\$6.49/dozen	\$3.99/dozen	\$4.89/dozen	\$5.69/dozen	\$5.49/dozen
% More	100%	75%	14%	196%	33%	49%	58%	72%
Chicken, Whole/Cut Up								
Regular	\$1.49/lb.		\$1.99/lb.	\$1.69/lb.	\$2.49/lb.		\$2.48/lb.	\$1.99/lb.
Organic	\$3.49/lb.		\$2.49/lb.*	\$4.49/lb.	\$3.49/lb.		\$4.42/lb.	\$3.99/lb.
% More	134%		25%	166%	40%		78%	101%
Average Premium for Organic	59%	51%	37%	60%	24%	53%	35%	58%

*Best price for organic product. (Negative percentages indicate that the organic option is cheaper than the conventional.)

What 'Fresh' Really Means

Stores freely use terms such as "fresh" and "local"—but most don't mean much. "The USDA does not have standard definitions for those labels," spokeswoman Wendy Wasserman says. Here, food insiders give their definitions:

► **ORGANIC** does have strict guidelines, certifying that the food was processed in accordance with Department of Agriculture regulations that promote sustainability and minimize exposure to pesticides and other synthetic materials.

► **NATURAL**, when seen on meat, poultry, and egg products, means that they're minimally processed and contain no artificial ingredients, according to the USDA. But the label applies only to those three foods.

► **LOCAL** might be defined by one retailer "as products from their state; another might include bordering states," says Matt Seeley of produce company Nunes. Others, he says, might define it as "anything in stores within 24 hours of harvest."

► **ARTISAN** conjures hand-made, small-batch products. Consumer research firm The Hartman Group says fast-food chains such as Domino's, which sells "artisan" pizza, attempt "to create a shortcut to denote higher quality and premium, inverting the original meaning when it's put in the context of mass-produced foods."

► **SEASONAL** is relative, says Kathy Means of the Produce Marketing Association. "I define it as what's being grown near me now."

► **FRESH** has myriad meanings: just picked, gathered, produced, live, or unprocessed, per FMI. Darren Tristano, executive vice president for Technomic, sees it more narrowly. "Dishes prepared during the day that they're sold," he says.



EAT THE PEACH, NOT THE PESTICIDE

A shopper's guide

Our new produce guidelines show you how to make the best choices for your health and for the environment

ACROSS AMERICA, confusion reigns in the supermarket aisles about how to eat healthfully. One thing on shopper's minds: the pesticides in fruits and vegetables. In fact, a recent Consumer Reports survey of 1,050 people found that pesticides are a concern for 85 percent of Americans. So, are these worries justified? And should we all be buying organics—which can cost an average of 49 percent more than standard produce?

Experts at Consumer Reports believe that organic is always the best choice because it is better for your health, the environment, and the people who grow our food. The risk from pesticides on conventional produce varies from very low to very high, depending on the type of produce and on the country where it's grown. The differences can be dramatic. For instance, eating one serving of green beans from the U.S. is 200 times riskier than eating a serving of U.S.-grown broccoli.

"We're exposed to a cocktail of chemicals from our food on a daily basis," says Michael Crupain, M.D., M.P.H., director

of Consumer Reports' Food Safety and Sustainability Center. For instance, the Centers for Disease Control and Prevention reports that there are traces of 29 different pesticides in the average American's body. "It's not realistic to expect we wouldn't have any pesticides in our bodies in this day and age, but that would be the ideal," says Crupain. "We just don't know enough about the health effects."

If you want to minimize your pesticide exposure, see the chart on page 31. We've placed fruits and vegetables into five risk categories—from very low to very high. In many cases there's a conventional item with a pesticide risk as low as organic. Below, you'll find our experts' answers to the most pressing questions about how pesticides affect health and the environment. Together, this information will help you make the best choices for you and your family.

Q. How Risky Are Pesticides?

There's data to show that residues on produce have actually declined since 1996, when Congress passed the Food Quality Protection Act. This law requires that the

EPA ensure that levels of pesticides on food are safe for children and infants.

Every year, the Department of Agriculture tests for pesticide residues on a variety of produce. In its latest report, more than half of the samples had residues, with the majority coming in below the EPA tolerance levels. "Conventionally grown fruits and vegetables are very safe," says Teresa Thorne, spokesperson for the Alliance for Food and Farming (AFF), an organization that represents conventional and organic produce growers.

But that's not the whole story. Looking at *specific* produce items, you see that progress has been made for some but not others. Grapes and pears, for example, once would have been in the high-risk or very high-risk categories but now rank low. But others, such as green beans, have been in the higher-risk categories for the past 20 years.

And there's more to consider than just the amount of pesticides on the apple you eat. "Tolerance levels are calculated for individual pesticides, but finding more than one type on fruits and vegetables

is the rule—not the exception,” says Urvashi Rangan, Ph.D., a toxicologist and executive director of the Food Safety and Sustainability Center.

Our survey found that a third of Americans believe there’s a legal limit on the number of different pesticides allowed on food. But that’s not the case. Almost a third of the produce the USDA tested had residues from two or more pesticides. “The effects of these mixtures is untested and unknown,” Rangan says.

Q. What’s the Evidence That Pesticides Hurt Your Health?

A lot of the data comes from studies of farmworkers, who work with these chemicals regularly. Studies have linked long-term pesticide exposure in this group to increased risk of Alzheimer’s and Parkinson’s disease; prostate, ovarian, and other cancers; depression; and respiratory problems. There’s some suggestion that adults and children living in farm communities could also be at risk for chronic health problems.

The rest of us may not handle the stuff, but we *are* exposed through food, water, and air. The fact that pesticide residues are generally below EPA tolerance limits is sometimes used as “proof” that the health risks are minimal. But the research used to set these tolerances is limited.

In a 2010 report on environmental cancer risks, the President’s Cancer Panel (an expert committee that monitors the

country’s cancer program) wrote: “The entire U.S. population is exposed on a daily basis to numerous agricultural chemicals. ... Many of these chemicals have known or suspected carcinogenic or endocrine-disrupting properties.” Endocrine disruptors can block or mimic the action of hormones, even at low doses. “Endocrine effects aren’t sufficiently factored into the EPA pesticide-tolerance levels,” Crupain says. “And there’s concern they could cause reproductive disorders; birth defects; and breast, prostate, and other hormone-related cancers.”

Q. Who May Be at Greatest Risk From Pesticide Exposure?

Aside from farmworkers, it’s children. A child’s metabolism is different from an adult’s, so toxins can remain longer in a child’s body, where they can do more damage. Pesticide exposure can affect children’s development at many stages, starting in the womb. “Fetuses, babies, and kids are more vulnerable to the effects of pesticides because their organs and nervous systems are still developing,” says Philip Landrigan, M.D., director of the Children’s Environmental Health Center at the Icahn School of Medicine at Mount Sinai Hospital in New York. And children’s risk is concentrated because they eat more food relative to their body weight than adults.

The health risks to children are significant. Even small amounts of pesticides may alter a child’s brain chemistry during critical stages of development. One study of 8- to 15-year-olds found that those with the highest urinary levels of a marker for exposure to a particularly toxic class of pesticides called organophosphates (OPs) had twice the odds of developing attention deficit hyperactivity disorder as those with undetectable levels. Another study found that at age 7, children of California farmworkers born to mothers with the highest levels of OPs in their bodies while they were pregnant had an average IQ 7 points below those whose moms had the lowest levels during pregnancy. That’s comparable to the IQ losses children suffer due to low-level lead exposure.

The risk to adults is lower but still worrisome. “Pesticide exposure likely increases the risk, first, of cancerous tumor



Mom Was Right. Wash It.

The USDA measures pesticide residues *after* produce has been rinsed in cold running water and/or inedible peels and rinds are removed. So the pesticide residues used to calculate our risk guide are those that remain after the fruit or vegetable has been prepped the way you would at home.

Rules to Shop By

Our risk guide for conventional produce

This chart shows the risk of pesticide exposure from eating 48 fresh conventional fruits and vegetables from 14 different countries. Analyzing 12 years of data from the Department of Agriculture’s Pesticide Data Program, Consumer Reports scientists, in consultation with Charles Benbrook, Ph.D., of Washington State University, placed each produce-country combination into one of five risk categories. Risk assessment included the number of pesticide residues on each food, the frequency with which they were found, and the toxicity of the pesticides. The risk categories correlate with the number of daily servings of that fruit or vegetable. (See the key below.)

We also took into account the typical serving size of the food and the weight of the person eating that food. Our analysis is based on the risk to a 3½-year-old child, estimated to weigh 35.2 pounds, because children are especially vulnerable to the dietary risks from pesticides and the EPA is required to consider the effects of pesticides on children. The risks to adults would be lower.

We recommend buying organic for any produce-country combination in the medium or higher risk categories. We found that all organic produce falls into the low- or very low-risk categories. Conventional items in the low or very low categories are essentially equivalent to organic.

OUR NO. 1 RULE: Eat more produce! Though we believe that organic is always the best choice because it promotes sustainable agriculture, getting plenty of fruits and vegetables—even if you can’t obtain organic—takes precedence when it comes to your health.

RISK LEVEL

Very Low 100 or more daily servings	Low 10 to 100 daily servings	Medium 5 to 10 daily servings	High 1 to 5 daily servings	Very High 1 daily serving
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GET MORE INFO

Go to ConsumerReports.org/cro/produce0515 for an interactive version of our risk guide and more information on pesticides and produce.

FRUITS	Risk Level ¹					You Can Choose Conventional If It's From:	Beware of Conventional If It's From:	Always Buy Organic
	Very Low	Low	Med.	High	Very High			
Peaches							Chile, U.S.	✓
Tangerines							Chile, South Africa, U.S.	✓
Plums						U.S.	Chile	
Nectarines							U.S., Chile ²	✓
Apples						New Zealand	U.S.	
Strawberries							U.S.	✓
Cantaloupe						Honduras, Mexico, Costa Rica, Guatemala ²	U.S.	
Cranberries							U.S.	✓
Mangoes						Mexico, Guatemala ²	Brazil	
Pears						Argentina, U.S.		
Oranges						Chile, South Africa, U.S.		
Cherries						U.S.		
Grapefruit						U.S.		
Watermelon						Guatemala, Honduras, Mexico, U.S. ²		
Blueberries						Uruguay, Argentina, Canada, Chile, U.S. ²		
Grapes						Chile, Mexico, Peru, U.S.		
Raspberries						Mexico, U.S.		
Bananas						Colombia, Costa Rica, Ecuador, Guatemala, Honduras, Mexico		
Papaya						Belize, Brazil, Guatemala, Jamaica, Mexico, U.S.		
Pineapples						Costa Rica, Ecuador, Mexico, U.S.		
VEGETABLES	Risk Level ¹							
	Very Low	Low	Med.	High	Very High			
Green Beans							Guatemala, Mexico, U.S. ²	✓
Sweet Bell Peppers							U.S., Mexico ²	✓
Hot Peppers							U.S., Mexico ²	✓
Winter Squash						Guatemala, Honduras, Mexico ²	U.S.	
Cucumbers						Canada	Mexico, U.S.	
Summer Squash						Mexico	U.S.	
Snap Peas						Mexico, U.S.	Guatemala, Peru	
Tomatoes						Canada	U.S., Mexico ²	
Sweet Potatoes							U.S.	✓
Cherry Tomatoes						U.S.	Mexico	
Celery						Mexico	U.S.	
Carrots							Canada, Mexico, U.S.	✓
Kale						Mexico	U.S.	
Potatoes						Canada	U.S.	
Asparagus						Mexico, U.S. ²	Peru	
Eggplant						Honduras, U.S. ²	Mexico	
Lettuce						Mexico, U.S.		
Spinach						Mexico, U.S. ²		
Collard Greens						U.S.		
Cauliflower						Mexico, U.S.		
Cilantro						U.S., Mexico ²		
Green Onions						Mexico, U.S. ²		
Broccoli						U.S., Mexico ²		
Mushrooms						Canada, U.S. ²		
Cabbage						Canada, Mexico, U.S.		
Corn						Mexico, U.S.		
Avocado						Chile, Mexico, Peru		
Onion						Peru, U.S.		

development, and, second, your body not being able to control a tumor growth,” says Charles Benbrook, Ph.D., a research professor at the Center for Sustaining Agriculture and Natural Resources at Washington State University and a consultant to Consumer Reports. In addition, research has linked endocrine disrupters with fertility issues, immune system damage, and neurological problems. “However, unlike cancer, quantifying those effects is difficult at this time,” Crupain says.

Q. Does Eating Organic Mean I Won't Be Eating Any Pesticides?

There are two groups of agricultural pesticides: synthetic and natural. Synthetics are created in labs, and natural ones are substances that occur in nature. The majority of synthetic pesticides (and all of the most toxic ones) used in conventional farming are banned in organic farming, but pesticide drift can mean chemicals sprayed on conventional crops may find their way to nearby organic farms. Still, all of the organic produce in our analysis fell into the

very low-risk or low-risk categories.

USDA organic standards allow for the use of certain natural pesticides and very few synthetic ones. “But you can’t compare conventional and organic farming in an oranges-to-oranges kind of way,” says Michael Sligh, a farmer, founding chairman of the National Organic Standards Board, and Just Foods Program director at Rural Advancement Foundation International.

Natural pesticides are usually less toxic than synthetic ones. “‘Pesticide’ is a broad term used to refer to a range of substances from the very, very limited low-toxic ones allowed in organic farming to the highly toxic chemicals that can be used in conventional farming,” he says. “They are very different. Before a pesticide is even approved for use in organic farming, it must be evaluated for potential adverse effects on humans, animals, and the environment, and prove it’s compatible with a system of sustainable agriculture. And farmers must follow integrated pest-management plans that require that they use any approved organic pesticide as a last resort

and develop strategies to avoid repeated use.” Those differences have implications for personal health but also for the health of farmworkers and the planet. “Folks need to understand the multiple benefits they are getting when they choose organic,” he says, “and the multiple choices they are making when they don’t.”

Some conventional farmers do follow pest-management plans similar to those of organic farmers. “Practices such as crop rotation and the use of beneficial insects or pheromones are tools both conventional and organic farmers use,” says the AFF’s Thorne. That may be so. However, Sligh says, “for organic farmers it’s a requirement, not an option.”

And eating organic means you may have fewer pesticides in your body. A study in *Environmental Health Perspectives* found that people who said they often or always ate organic produce had about 50 percent lower levels of OP breakdown products in their bodies than those who rarely or never did. Those who sometimes chose organic produce had levels as much as 35 percent lower.

The Pesticide That’s Probably in Your Garage

The herbicide glyphosate, known by the commercial name Roundup, is the most commonly used agricultural pesticide in the U.S. on farms. It’s often used in backyards, too. Yet we have no idea how much of it is in our food because the government doesn’t regularly test produce for it.

Glyphosate use has increased tenfold in the past 20 years thanks to the rise in genetically modified corn and soy. Most of those crops are engineered to be resistant to glyphosate, which means Roundup will kill the weeds but not the crops. According to Charles Benbrook, Ph.D., of Washington State University, data shows that U.S. farmers used enough glyphosate in 2014 to apply the equivalent of almost three-quarters of a pound on every acre of farmland

used to grow crops. “When a single pesticide is used that widely, people can’t help but be exposed to it,” Benbrook says.

And now there will be even more glyphosate sprayed thanks to the EPA’s approval in late 2014 of the herbicide Enlist Duo, a combination of glyphosate and another chemical herbicide, called 2,4-D. That latest approval has drawn criticism. “I think if the EPA had followed the mandates of the Food Quality Protection Act, there’s no way that they could have ever approved this very substantial increase in the use of glyphosate,” says Philip Landrigan, M.D., of Mount Sinai Hospital. He says the

EPA’s decision that Enlist Duo is safe was based on old studies and that the agency was wrong to approve it without adhering to additional child-safety protections required by the act.

In one small study, the USDA found glyphosate residues on about 90 percent of 300 soybean samples. All were below the EPA’s tolerance level of 20 parts per million, but one of the samples came very close at 18.5 ppm. And we don’t know what other foods are contaminated.

CONSUMER REPORTS’ TAKE: The health effects of glyphosate are not well understood, but given its widespread use, we believe it should be monitored by the government.



Q. Should I Skip Conventionally Grown Produce?

No. The risks of pesticides are real, but the myriad health benefits of fruits and vegetables are, too. A 2012 study estimated that increasing fruit and vegetable consumption could prevent 20,000 cancer cases annually, and 10 cases of cancer per year could be attributed to consumption of pesticides from the additional produce. Another study found that people who ate produce at least three times per day had a lower risk of stroke, hypertension, and death from cardiovascular disease.

“We believe that organic is always the best first choice,” says Consumer Reports’ Rangan. “Not only does eating organic lower your personal exposure to pesticides, but choosing organic you support a sustainable agriculture system.” However, your primary goal is to eat a diet rich in fruits and vegetables—ideally five or more servings a day—even if it’s a type that falls into our very high-risk category. If organic produce is too pricey or not available, our analysis shows that you often have a low-risk conventional option.

The Low-Impact (but Still Lush) Landscape

How to get a gorgeous yard with less water and fewer chemicals—and, hooray, less work

CREATE AN ECOSYSTEM

A mix of grasses and flowers nurtures beneficial insects, which in turn attract birds and other animals.

GO NATIVE

Local plants can thrive without the need for supplemental water and fertilizer.

LIMIT THE LAWN

In a typical yard, making the grass 40 percent of the total area still leaves 2,500 square feet of lawn.

SEE WEEDS DIFFERENTLY

Dandelions are actually good for the soil, plus their greens are pretty tasty in a mixed salad.

LET THE GRASS GROW

In addition to attracting wildlife, a shaggier lawn will mean about 10 fewer hours spent mowing over the course of the season.

Lawn & Yard

GOING GREENER

GRASS GREENER on the other side of the fence? That might not be such a bad thing, now that the best yard on the block probably isn't the one pumped full of chemicals and water.

"After World War II, a uniform, emerald-green lawn was marketed as a sign of success, but it's becoming an outdated look as we understand the costs entailed," says Diane Lewis, a physician and founder of the Great Healthy Yard Project, which teaches homeowners how to get beautiful yards without synthetic pesticides and fertilizers. "It's much more appealing to have a more varied and less perfect lawn that's nurturing for your children, pollinators, and wildlife."

Instead of wall-to-wall coverage, more homeowners are going for the area-rug effect, for example, buffering a smaller patch of lawn with native plants that attract bees and butterflies. Others are using the yard to create an edible garden. Water-smart landscaping is also gaining traction, especially in drought-stricken regions, where some municipalities pay residents hundreds of dollars to replace thirsty turfgrass with gravel or mulch.

John Marzluff, author of "Welcome to Suburbia" (Yale University Press, 2014), calls it the Freedom Lawn. "Spending less time and money on lawn maintenance may allow homeowners to relax and enjoy nature in other ways, such as bird feeding," he writes, noting that a shaggy lawn can attract goldfinches to dandelion

seeds and even harbor frogs and turtles.

Consider this: Homeowners apply up to 10 times more pesticides per acre to their lawns than farmers do to crops, according to the U.S. Fish and Wildlife Service. Exposure to those toxins carries potential health risks, from skin rashes to cancer. And after they leave your yard, "the chemicals don't just disappear," Lewis says. "They wind up in rivers and streams and eventually get into our drinking water."

Then there's the economics. Maintaining a trophy lawn can be expensive, especially with water costs up 25 percent since 2010, according to the American Water Works Association. In parts of the Southwest, where tiered pricing applies, monthly bills can top \$300. If the expense doesn't cause homeowners to rethink their thirsty yard, being branded a water hog might. California's State Water Resources Control Board website has even started ranking communities by their per capita water use.

Whatever your motivation, creating a healthy yard that looks great doesn't have to be a lot of work. In addition to being more fuel-efficient, the latest mowers, tractors, and string trimmers are easier to operate and maintain. The electric starter in the \$500 Cub Cadet SC500EZ uses a lithium-ion battery you can charge indoors, where the temperature is right for charging. And the Briggs & Stratton EXi engine, found in the Toro 20353 and Snapper SP80 (see page 36 for Ratings), never needs an oil change.

7 Steps to Sustainable Lawn Care

Let it grow. A scalped lawn means weak, shallow roots, so let your grass grow to about 4½ inches before mowing it to about 3 inches.

Mulch those clippings. They'll deposit nutrients back into the soil, which could reduce your fertilizer needs by 25 to 40 percent, says Van Cline, Ph.D., senior agronomist for Toro.

Water less often. An established lawn needs only about 1 inch of water per week, including rainfall (use an empty tuna can to keep track). Rather than a daily sip, give the lawn a good, long drink once per week or so.

Air it out. Heavily compacted soil denies your lawn much-needed oxygen. Aerating the lawn with a core aerator will help the soil breathe. Fall is the ideal time for this project because spring aeration can kick up weed seeds.

Embrace certain weeds. Clover takes nitrogen from the air and feeds it to the soil. With their deep taproots, dandelions can provide natural aeration. Mow them as you do grass.

Do a soil test. That will tell you which nutrients are missing. Applying lime can control acidity and reduce fertilizer needs. Though do-it-yourself kits are available, your local cooperative extension will do a more accurate soil test.

Look for low-maintenance ground cover. "Sedge is a grasslike plant that's getting a lot of attention," says Pam Penick, author of "Lawn Gone!" (Ten Speed Press, 2013). It can take occasional light foot traffic. For higher-traffic areas, she likes No Mow Lawn Seed Mix from Prairie Nursery, a fine-fescue mix suitable for cooler climates. In hot, arid regions, consider Habiturf, a mix of short prairie grasses.

Cut Your Water Bill by 50 Percent?

With forecasts changing like, well, the weather, it can be tough to properly water at the right time. But the makers of these smart products claim to save up to half of the water your sprinklers use now:

- **Blossom** Smart Watering Controller, \$150
- **Rachio Iro** Smart Sprinkler Controller, \$250
- **Skydrop** Sprinkler Controller, \$300

The three products work similarly: A hardware device taps into weather-forecasting

systems, customized to where you live, and either replaces or manages your existing controller and sprinklers.

• Toro Precision Soil Sensor, \$115

This low-profile device relies on your soil's moisture level at a given spot to judge when the grass needs water. A sensor probe, inserted into the soil, communicates with a receiver connected to your irrigation controller.



3 Smart Scenarios

A healthy, well-balanced yard should be about 40 percent lawn, with the rest covered in trees, gardens, and hardscapes. Here are three garden treatments to consider, adaptable to whatever zone you live in.



THE YARD-TO-TABLE GARDEN

It takes some effort and irrigation, but an edible garden qualifies as sustainable by providing food for your family. “We started to see an increase in food gardening in 2009, after the recession, and it remains popular today,” says Bruce Butterfield, market research director at the National Gardening Association.

Nutrient-rich soil is key, so it’s worth investing in raised garden beds or going the container-garden route (a low-commitment option for beginners). Full sun is also required, so choose an exposed section of the yard. And consider drip irrigation, available in do-it-yourself kits at most home centers, because it will put water directly onto the root systems. As for what to grow, let your palate be your guide. “If you like strawberries, plant them,” Butterfield says. “Or you can grow a salad bar by planting tomatoes, cucumbers, and greens.” For additional suggestions, check out the website GrowVeg.com.

Average cost \$50 for a 75-square-foot plot.



THE WILDLIFE-LOVING GARDEN

The monarch butterfly, which had its lowest count on record in 2014, is disappearing. Bees are also dying off in droves. Planting native milkweed and honeysuckle will provide nectar and pollen to those and other pollinators. Or consider “birdscaping,” by adding nourishing berry plants or thorny trees that offer protective cover for nests.

“If you can only count five species of plants, including the lawn, you’ve got an overly homogenized landscape,” says Damon Waitt, senior director and botanist at the Lady Bird Johnson Wildflower Center in Texas. “You want to see five times that number.” The center’s website (wildflower.org) has a database of more than 8,000 plants that can be searched by region, size, and sun requirements. You can also search for plants that are loved by bees and butterflies but not deer and other pests.

Average cost \$50 to \$150 for a 75-square-foot plot when using plants; \$10 if starting from seed.



THE WATER-SMART GARDEN

With roughly half of the U.S. experiencing abnormally dry conditions, water-smart landscaping is going from niche to necessity. But it’s not all cactuses and concrete. “A responsible garden that takes less water can have the same appeal as a traditional garden,” says Bob Brackman, executive director of the San Antonio Botanical Garden. Go for native species that are adapted to local rainfall conditions. A layer of mulch will help retain moisture and slow weed growth.

For patios or pathways, a permeable material such as pea gravel or crushed granite will prevent runoff when it does rain. Use a rain barrel or other catchment system to collect water from the roof or your home’s air conditioning unit. Make sure in-ground irrigation is equipped with a soil sensor so that the yard gets water only when it needs it. The WaterSense section of the EPA’s website (epa.gov) has additional tips.

Average cost \$9 to \$12 per square foot, including plants, materials, and high-efficiency irrigation.

You’re Probably Using Too Much Fertilizer

Most turfgrass needs some kind of supplemental nutrition. But the four- and five-step programs marketed by manufacturers are overkill, plus they can unleash harsh chemicals into the ecosystem. A single fall application is often sufficient, especially if you follow our other lawn-care advice. Always read the instructions on the label, and keep fertilizers off sidewalks and other areas where they can be swept into storm drains.

GOOD. Slow-release fertilizers. These contain nitrogen and other chemicals, but they’re in a water-insoluble form, so they’re less likely than fast-release fertilizers to leach into the soil and eventually into waterways. Plus they won’t damage the lawn the way fast-release products can if you use too much. Using the recommended type of drop spreader will ensure even dispersal.

BETTER. Organic fertilizers. Derived from plant, animal, and mineral sources, organic fertilizers are broken down by microorganisms in the soil. If you have pets, avoid those that contain bone, blood, and fish meal because they might try to eat them, which can cause vomiting and diarrhea. The Organic Materials Review Institute’s website (omri.org) lists products that adhere to strict standards.

BEST. Compost. Applying a quarter-inch top dressing of compost a couple of times per year will add healthy organic matter to the soil, reducing or even eliminating the need for fertilizer. Composting right after you’ve aerated will help mix the organic matter into the soil. A backyard compost bin is the most cost-effective approach, or you can purchase compost from the local garden center.

Pick the Best Lawn Mower for Your Needs

EASE AND PERFORMANCE: SELF-PROPELLED

- **A4 Honda** \$500
- **A5 Toro** \$520 **CR Best Buy**
- **A7 Honda** \$400 **CR Best Buy**
- **A8 Toro** \$400 **CR Best Buy**
- **A9 Toro** \$400
- **A11 Troy-Bilt** \$340 **CR Best Buy**
- **B1 Toro** \$380

Self-propelled mowers require less effort on your part, especially on graded areas of your lawn. Paying more for A4 buys superb mulching and bagging, no-prime starting, and an electric-start feature whose battery gets charged while you mow. Among the other multispeed mowers, choose A5 for its bagging, A9 for its blade-brake clutch, and A11 for its low price and electric start. B1 tops our single-speed picks and offers unique stand-up storage. Also consider the all-wheel-drive A8 for steep slopes—as well as the quiet Craftsman 37545, which just missed making our picks—if you mostly mulch and would rather not wear ear protection.

PUSH MOWERS FOR SMALLER LAWNS

- **C1 Yard Machines** \$240 **CR Best Buy**
- **D2 Black & Decker** \$400
- **D3 Black & Decker** \$450
- **E1 Black & Decker** \$240

Among push gas mowers, choose C1 for its impressive mulching and bagging and stellar evenness in side-discharge mode. Among battery mowers, pick D2 for its impressive mulching and D3 for its driven wheels and smoother side-discharging. Willing to live with a cord? E1 is still a cut above the others in this group.

Ratings: Lawn Mowers

Scores in context: Of the 69 gasoline-powered mowers we tested, the highest scored 88; the lowest, 40. Of the 31 corded- and cordless-electric models, the highest scored 62; the lowest, 36.

☒ CR Best Buy ☒ Recommended

A. GAS SELF-PROPELLED, MULTISPEED

Recommended	Rank	BRAND & MODEL	PRICE	SPECS		SCORE	TEST RESULTS				
				Deck Size (in.)	Engine Power		Mulching	Bagging	Side-Discharge	Handling	Ease of Use
<input checked="" type="checkbox"/>	1	Honda HRX2175VYA	\$800	21	190 cc	88	●	●	●	●	●
<input checked="" type="checkbox"/>	2	Honda HRX2175VKA	\$700	21	190 cc	87	●	●	●	●	●
<input checked="" type="checkbox"/>	3	Honda HRX217VKA	\$600	21	190 cc	83	●	●	●	●	●
<input checked="" type="checkbox"/>	4	Honda HRR2169VLA	\$500	21	160 cc	83	●	●	●	●	●
<input checked="" type="checkbox"/>	5	Toro Super Recycler 20381	\$520	21	159 cc	82	●	●	●	●	●
<input checked="" type="checkbox"/>	6	Honda HRR2169VYA	\$479	21	160 cc	82	●	●	●	●	●
<input checked="" type="checkbox"/>	7	Honda HRR2169VKA	\$400	21	160 cc	81	●	●	●	●	●
<input checked="" type="checkbox"/>	8	Toro Recycler 20353	\$400	22	163 cc	75	●	●	●	●	●
<input checked="" type="checkbox"/>	9	Toro Recycler 20333	\$400	22	190 cc	75	●	●	●	●	●
<input checked="" type="checkbox"/>	10	Cub Cadet SC500EZ	\$500	21	190 cc	74	●	○	●	●	●
<input checked="" type="checkbox"/>	11	Troy-Bilt TB-280ES 12AGA26G	\$340	21	190 cc	73	●	●	●	●	●
<input checked="" type="checkbox"/>	12	Toro Recycler 20332	\$350	22	190 cc	73	●	●	●	●	○
<input checked="" type="checkbox"/>	13	Snapper SP90	\$350	21	175 cc	72	●	●	●	●	●
<input checked="" type="checkbox"/>	14	Troy-Bilt TB-320 12AVC35U	\$330	21	190 cc	72	●	●	●	●	●
<input checked="" type="checkbox"/>	15	Cub Cadet SC300HW	\$300	21	159 cc	71	●	○	●	●	●
<input checked="" type="checkbox"/>	16	Ariens 911177	\$460	21	159 cc	71	●	●	○	●	●
<input checked="" type="checkbox"/>	17	Snapper SP105	\$400	21	175 cc	71	●	○	●	●	●
<input checked="" type="checkbox"/>	18	Ariens Razor 911179	\$400	21	159 cc	70	●	●	○	○	●
<input checked="" type="checkbox"/>	19	Troy-Bilt TB370 12AKD6BZ	\$400	21	190 cc	70	●	○	●	●	●
<input checked="" type="checkbox"/>	20	Snapper SP80	\$300	21	163 cc	70	●	○	●	●	●
<input checked="" type="checkbox"/>	21	Troy-Bilt TB-360	\$370	21	190 cc	70	●	○	●	●	●
<input checked="" type="checkbox"/>	22	Craftsman 37591	\$380	21	159 cc	70	●	○	●	●	●

Listed in our Ratings are the top-scoring models in order of performance. Recommended models offer top performance and specific strengths. CR Best Buys blend value and performance.

● Excellent ● Very Good ○ Good ● Fair ● Poor

B. GAS SELF-PROPELLED, SINGLE-SPEED

Recommended	Rank	BRAND & MODEL	PRICE	SPECS		SCORE	TEST RESULTS				
				Deck Size (in.)	Engine Power		Mulching	Bagging	Side-Discharge	Handling	Ease of Use
✓	1	Toro Recycler 20339	\$380	22	190 cc	67	●	●	●	●	●
✓	2	Toro Recycler 20370	\$280	22	149 cc	66	●	●	●	●	○
✓	3	Toro Recycler 20371	\$300	22	149 cc	65	●	●	●	●	○
✓	4	Yard-Man 12A-18M7	\$250	19	173 cc	60	●	○	●	●	●
✓	5	Lawn-Boy 10734	\$330	21	149 cc	60	●	○	○	○	●
✓	6	Snapper SP70	\$280	21	163 cc	60	●	○	●	●	○

C. GAS PUSH

✓	1	Yard Machines 11A-B96N	\$240	21	190 cc	67	●	●	●	●	○
✓	2	Lawn-Boy 10730	\$240	21	149 cc	65	●	○	○	●	●
✓	3	Ariens Razor 911173	\$350	21	159 cc	65	●	●	○	●	●

D. BATTERY-POWERED ELECTRIC

✓	1	EGO LM2000	\$500	20	56 volts	62	○	○	○	●	●
✓	2	Black & Decker CM1936	\$400	19	36 volts	59	●	○	○	○	●
✓	3	Black & Decker SPCM1936 ①	\$450	19	36 volts	59	○	○	●	●	●
✓	4	Ryobi RY40107	\$400	20	40 volts	59	○	●	②	●	●
✓	5	Neuton CEM6X4X	\$400	19	36 volts	59	○	○	○	●	●
✓	6	Black & Decker CMM1200	\$430	19	24 volts	58	●	○	○	○	●
✓	7	Worx WG771	\$500	19	56 volts	58	○	○	○	●	●
✓	8	Kobalt KM1940-06	\$350	19	40 volts	58	○	●	○	●	●
✓	9	Kobalt 632477	\$500	21	80 volts	57	○	○	○	●	○
✓	10	Toro 20360	\$420	20	36 volts	56	●	●	②	○	●

E. CORDED ELECTRIC

✓	1	Black & Decker MM875	\$240	19	12 amps	56	●	●	○	●	●
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① Self-propelled electric. ② Mulching and bagging only.



Honda
HRR2169VKA



Toro Recycler 20339



Yard Machines 11A-B96N

THE WORST MOWERS

Even the lowest-rated tractors and riders we tested still performed passably. But several mowers left ugly clumps in their wake and scored just 40 or lower:

• Earthwise 60318 \$300

Most self-propelled cordless mowers cost more, and for good reason. This one clogged and left clippings when bagging, and we found it hard to maneuver.

• Murray M22500 \$170

This gas push mower wasn't designed to bag, was mediocre in the side-discharge mode, and left visible clippings when mulching. Many push mowers adjust cutting height with one lever per wheel, but for this one you'll need to remove and reattach each wheel.

• Earthwise 50120 \$160

It's the least expensive of the plug-in mowers we tested, but it's no bargain. Mulching and bagging were subpar, and—with many leftover clippings—side-discharging was so-so.

The Goal: A Mower That's Still Working in 15 Years

Whatever kind of mower you have, proper maintenance should help keep it going a decade or more. Here are the most common ways to have your machine humming.

FUEL MATTERS MOST. Gasoline degrades and gums up over time. Ethanol in the gas can compound the problem by degrading rubber and plastic parts and coating linkages.

- Add stabilizer, particularly one designed for ethanol, to gas before fueling.
- Siphon extra fuel out of a walk mower and run it dry at the end of the season.
- For a tractor or rider, either run it dry or top off the gas tank so that there's no room for condensation—but be sure to add stabilizer to gas first.

CHANGE THE OIL. Having sufficient, clean oil is what keeps your mower or tractor engine from overheating and failing prematurely. For all lawn gear, consult your manual for how often to change the oil and what grade to use.

- With a walk mower, change oil when the fuel tank is empty.
- To change oil: Position an auto-style drain pan beside the mower on the side of the dipstick cap. Remove the cap and tip the mower over the pan to drain the oil. Refill.
- For a tractor or rider, the manual gives the oil-change schedule by the number of hours it's in use, which the machine's hour meter will provide. (If not, you can buy one separately.)
- Most riding mowers have an easy-access drain plug. Drain the oil and replace the oil filter. Refill to the "full" mark.

MIND THE DECK. Built-up clippings in your mower or tractor deck will obstruct airflow,



leading to uneven cutting and corrosion. Dull blades make the machine rip, not slice, the grass.

- Many walk and riding mowers have a wash-out port for a hose; use it after every mowing, and let it dry before stowing. If you have to wash out a riding mower manually, drive the front of the tractor onto a set of automotive ramps to elevate it for easier access.
- If you've neglected the washouts, scrape clumps off with a plastic putty knife.
- Sharpen the blade three times per year. For a walk mower, having a spare lets you replace a dull blade with a sharpened one at the same time. To avoid injury when removing the blade, wear heavy leather gloves, remove the

spark-plug wire, and jam in a short two-by-four to keep the blade from turning.

KEEP UP CONTACTS. A spark plug needs changing about every 100 hours of operation; otherwise, engine startup and overall performance will be affected. Even electric mowers need attention to maximize battery life.

- With the mower off, remove the spark-plug cap and use a socket wrench with a spark-plug socket to remove the old plug. Take it to an auto-parts store or outdoor-gear dealer and get a new one.
- If you have an electric mower, periodically charge the battery throughout the winter. Otherwise, its ability to fully recharge will diminish gradually before failing altogether—sooner than you expected. Mowers should be brought indoors over the winter.
- For lawn tractors or riders, keep your battery fully charged, or at least periodically recharge it when it's not in use.
- Even if you have to store the tractor outdoors, buy a trickle charger for this type of machine and keep just the battery indoors.

DON'T FORGET FILTERS. You'll also need to replace your air filters to protect the engine. In addition to the oil filter, riding mowers have fuel filters.

- On most walk mowers, the air filter is paper and can be removed in seconds. Not sure which to get? Take the old one to your dealer.
- On riding mowers, if the air filter is paper, replace it. If it's foam, wash it in soap and water. Rinse and squeeze dry.

Five Essential Tools for Your Shed



SMALL BOW SAW

Look for a sturdy blade guard for safe storage between cuts. Lightweight guards tend to break easily. Choose a minimum 24-inch blade.



PRUNER

Look for sharp bypass blades with a scissorlike action for clean cuts of small or thin branches from shrubs and trees. Keep blades sharp.



GARDEN HOE

Look for a lightweight aluminum or fiberglass handle. "Stirrup-style" blades are easier to wield. A slotted blade eases soil loosening.



RAKE

Look for a lighter weight, nonwood handle. On some models, you can adjust the width from narrow, for tight spaces, to full-sized for leaves.



KNEELING PAD

Look for high-density foam to better protect your knees. Larger ones keep you from having to shift often as you move down a row.

Ratings: Lawn Tractors

Scores in context: Of the 66 lawn mowers we tested, the highest scored 82; the lowest, 46. Listed below are the top-scoring models in order of performance. Recommended models offer top performance and specific strengths. CR Best Buys blend value and performance.

☒ CR Best Buy ☒ Recommended

● Excellent ● Very Good ● Good ● Fair ● Poor

A. LAWN TRACTORS

Recommended	Rank	BRAND & MODEL	PRICE		SPECS		SCORE	TEST RESULTS				
			Machine	Bag/Mulch Kit	Deck Size (in.)	Engine Power		Side-Discharge	Mulching	Bagging	Handling	Ease of Use
<input checked="" type="checkbox"/>	1	John Deere X300	\$3,000	\$500/\$150	42	18.5 hp	79	●	●	●	●	●
<input checked="" type="checkbox"/>	2	Craftsman 20442 ¹	\$2,200	\$500/\$95	46	24 hp	78	●	●	●	●	●
	3	Cub Cadet GT 2042	\$3,600	\$570/\$75	42	20 hp	77	●	●	●	●	●
	4	Cub Cadet 13APA1CT056	\$1,700	\$490/\$95	46	22 hp	77	●	●	●	●	●
<input checked="" type="checkbox"/>	5	Husqvarna YT46LS	\$2,300	\$320/\$50	46	21.5 hp	76	●	●	●	●	●
	6	Cub Cadet 13AVA1CS056	\$1,500	\$490/\$75	42	18 hp	76	●	●	●	●	●
<input checked="" type="checkbox"/>	7	Snapper NXT2346	\$2,800	\$430/\$80	46	23 hp	76	●	●	●	●	●
<input checked="" type="checkbox"/>	8	John Deere X310	\$4,000	\$520/\$90	42	18.5 hp	75	●	●	●	●	●
<input checked="" type="checkbox"/>	9	John Deere X304 ¹	\$3,600	\$520/\$90	42	17 hp	75	●	●	●	●	●
<input checked="" type="checkbox"/>	10	John Deere S240 Sport	\$2,500	\$360/\$40	42	18.5 hp	75	●	●	●	●	●
<input checked="" type="checkbox"/>	11	John Deere D125	\$1,800	\$350/\$50	42	20 hp	75	●	●	○	●	●
<input checked="" type="checkbox"/>	12	Snapper 960440007	\$1,600	\$350/\$50	46	20 hp	74	●	●	●	●	●
<input checked="" type="checkbox"/>	13	John Deere D110	\$1,700	\$340/\$30	42	19.5 hp	74	●	●	●	●	●
	14	Cub Cadet LTX1045 13RX91AT	\$1,700	\$380/\$50	46	20 hp	74	●	●	○	●	●
	15	Cub Cadet LTX1040 13RX90AR	\$1,500	\$550/\$50	42	19 hp	73	●	●	●	●	●
<input checked="" type="checkbox"/>	16	Craftsman 20390 ¹	\$1,800	\$310/\$55	42	24 hp	72	●	●	●	●	●
<input checked="" type="checkbox"/>	17	Ariens 523543	\$1,400	\$300/\$50	46	20 hp	71	●	●	●	●	●
<input checked="" type="checkbox"/>	18	Husqvarna YTH22V46	\$1,700	\$315/\$50	46	22 hp	70	●	●	●	●	●
<input checked="" type="checkbox"/>	19	Craftsman 20374	\$1,300	\$410/\$55	46	21 hp	70	●	●	●	●	○

B. LAWN TRACTORS (WIDE-DECK)

<input checked="" type="checkbox"/>	1	Craftsman 20445 ¹	\$3,000	\$500/\$95	54	26 hp	77	●	●	●	●	●
<input checked="" type="checkbox"/>	2	Troy-Bilt Super Bronco XP 13WQA2KQ	\$1,900	\$470/\$60	50	24 hp	77	●	●	●	●	●
<input checked="" type="checkbox"/>	3	John Deere D155	\$2,200	\$350/\$30	48	24 hp	74	●	●	●	●	●
	4	Cub Cadet LGTX1050 13WS92AP ¹	\$2,700	\$550/\$50	50	25 hp	73	○	●	●	●	●

Ratings continued on next page



John Deere X300

Pick the Best Lawn Tractor for Your Needs

TOP-TESTED TRACTORS

● **A1 John Deere** \$3,000

● **A2 Craftsman** \$2,200
CR Best Buy

● **A7 Snapper** \$2,800
CR Best Buy

● **A10 John Deere** \$2,500

Lower-priced on average than zero-turn-radius riders for properties larger than a half-acre, tractors are the better bet for bagging clippings—and they're easier on turf and more stable on hills. Top scores and high-quality features make A1 well worth its price. For \$800 less, A2 has a larger deck, mulched more evenly, and can turn more tightly. You might also like its 6½-mph ground speed. A7 offers impressive cutting across the board and a dashboard LED screen with an hour meter and timers for changing oil, filters, and more. A10 comes with an extra-wide, flat chute that, for side-discharging, shows some improvement in dispersal of clippings over older Deere tractors; it's also priced more competitively.

FOR WIDER MOWING

● **B1 Craftsman** \$3,000

● **B2 Troy-Bilt** \$1,900
CR Best Buy

● **B3 John Deere** \$2,200

Wider-deck lawn tractors haven't fared as well at cutting evenness as their smaller siblings have, but

Lawn & Yard GOING GREENER



**Troy-Bilt Mustang
42" 17WFCACS**

this trio has changed the rules with exceptional cutting. **B1** has the largest deck, at 54 inches, and offers tight turning around trees and other obstacles. A bargain for 50-inch cutting, **B2** matched **B1** for cutting and offers the same electric power takeoff, dashboard, and other features. **B3** is slightly smaller, with a 48-inch deck, but offers impressive cutting in all modes.

FOR TIGHT TURNING AND JUST PLAIN FUN

- **C1 Troy-Bilt** \$2,300
CR Best Buy
- **C2 Troy-Bilt** \$2,900
CR Best Buy
- **C9 Toro** \$3,000

Zero-turn-radius riders offer the greatest ground speed—though you should be mowing at about 4 mph—and easy turning around obstacles on fairly flat lawns. We've called **C1**'s 42-inch deck the ultimate in cutting performance, and the 46-inch **C2** follows that tradition—making both the highest-scoring riding machines overall. (Cub Cadet, from the same manufacturer, has a high repair rate in our survey, which has kept the brand off our list of picks for lawn tractors and zero-turn-radius riders.) For more stability on hills, **C2** and **C9** have a steering wheel and steerable front wheels instead of the usual control levers and caster-style front wheels, an innovation we first saw in the **C5**, **C6**, and **C7**.

Ratings: Lawn Tractors

Scores in context: Of the 66 lawn tractors and riders we tested, the highest scored 82; the lowest, 46. Listed below are the top-scoring models in order of performance. Recommended models offer top performance and specific strengths. CR Best Buys blend value and performance.

☑ CR Best Buy ☑ Recommended

● Excellent ● Very Good ○ Good ● Fair ● Poor

B. LAWN TRACTORS (WIDE-DECK) continued

Recommended	Rank	BRAND & MODEL		PRICE		SPECS		SCORE	TEST RESULTS				
			Machine	Bag/Mulch Kit		Deck Size (in.)	Engine Power		Side-Discharge	Mulching	Bagging	Handling	Ease of Use
☑	5	John Deere D140	\$2,000	\$350/\$35		48	22 hp	69	○	●	●	●	●
☑	6	Husqvarna YTH24K48FT	\$1,900	\$350/\$50		48	24 hp	69	○	●	●	●	●
☑	7	Craftsman 20391 ^①	\$2,100	\$410/\$55		54	26 hp	68	○	○	●	●	●

C. ZERO-TURN-RADIUS RIDERS

☑	1	Troy-Bilt Mustang 42" 17WFCACS	\$2,300	\$500/\$50		42	22 hp	82	●	●	●	●	●
☑	2	Troy-Bilt Mustang Pivot 17ARCBTD ^②	\$2,900	\$440/\$55		46	22 hp	81	●	●	●	●	●
☑	3	Troy-Bilt Mustang 50" 17WFCACP	\$2,800	NA/\$50		50	25 hp	79	●	●	③	●	●
	4	Cub Cadet RZT L54	\$3,300	\$500/\$100		54	24 hp	79	●	●	●	●	●
	5	Cub Cadet RZT-S Zero ^②	\$4,000	NA/NA		42	48 volts	77	●	④	④	●	●
	6	Cub Cadet Z Force S46 17AF5BHH ^②	\$3,600	NA/\$50		46	20 hp	76	●	●	③	●	●
	7	Cub Cadet RZT-S 46 17WF2BTD ^②	\$3,000	\$400/\$50		42	22 hp	75	●	●	○	●	●
☑	8	John Deere Z235	\$2,500	\$400/\$100		42	20 hp	73	●	●	●	●	●
☑	9	Toro SW4200 74784 ^②	\$3,000	\$500/\$140		42	24.5 hp	72	●	●	●	●	●
☑	10	Toro TimeCutter SS4235 74627	\$2,600	\$500/\$140		42	20 hp	71	●	●	●	●	●
	11	Cub Cadet RZT42 17WF2ACS	\$2,500	\$400/\$75		42	22 hp	71	●	●	●	●	●
	12	Husqvarna RZ246 23/46	\$2,700	\$315/\$50		46	23 hp	70	●	●	●	●	●

D. REAR-ENGINE RIDER

	1	Cub Cadet CC30	\$1,300	NA/\$30		30	420 cc	61	●	●	③	●	●
☑	2	Troy-Bilt TB30R 13BC26JD	\$1,000	\$200/\$30		30	11.5 hp	58	●	●	●	●	●

① Tighter turning than most tractors. ② Has steering wheel instead of levers. ③ Side-discharging and mulching only. ④ Side-discharging only.

Guide to the Ratings: Mowers & Tractors/Riders. Score for mowers, tractors, and riders is primarily based on mulching, bagging, side-discharging (includes evenness), handling, and ease of use. Scores for previously tested models may have changed. Display scores are rounded; models are listed in order of precise overall score. **Mulching** is how evenly clippings were cut and distributed. **Bagging** is filling evenness and capacity with full bag(s), including clogged chutes. **Side-Discharge** is how evenly clippings were dispersed. **Handling** for mowers assesses drive controls, pushing, pulling, U-turns, and other maneuvers; for tractors and riders, we evaluate drive engagement, braking, steering, turn radius, and resistance to front-wheel lift. (All zero-turn-radius riders, by definition, allow tight turning, so they are not footnoted.) **Ease of Use** for mowers is ease of starting, using blade-stopping controls, changing speeds, and adjusting cut height; for tractors and riders, leg room, seat and steering-wheel and lever comfort, ease of blade and brake engagement, bag removal, and cut-height and mode changes. **Price** is approximate retail for mowers and attachments.

Decisions, Decisions: Which Machine to Buy



Reel Mower

Price Range
\$70-\$200

Best for ...
Small lawns. They don't pollute. They're quiet, inexpensive, and relatively safe.

But ...
Cutting tends to be uneven. Also, be prepared for a hard slog if you let grass grow higher than a few inches.

Calories Burned Per Hour*
434



Push Mower

Price Range
Gas, \$150-\$350;
electric, \$160-\$690

Best for ...
Level lawns smaller than a half-acre. Electric starts with a button.

But ...
You'll do all of the pushing when mowing. Gas units need maintenance.

Calories Burned Per Hour*
362



Self-Propelled Mower

Price Range
Gas, \$250-\$800;
electric, \$380-\$500

Best for ...
Most lawns. They mow more evenly and are better for slopes.

But ...
Self-propelled mowers tend to need more repairs than push mowers.

Calories Burned Per Hour*
325



Lawn Tractor or Rider

Price Range
\$1,200-\$4,000

Best for ...
Lawns of one-half acre or more; lawn tractors are better for slopes.

But ...
You'll need roughly 4x6-foot storage space. Add-ons may use more fuel.

Calories Burned Per Hour*
181

*For a typical 150-pound person.

How Reliable Is That Lawn Mower?

We asked readers whether their mower broke. Below is the percentage that failed, by brand within type. Honda is among the more reliable self-propelled mower brands. Cub Cadet is the most repair-prone push-mower brand.

PUSH MOWERS		SELF-PROPELLED MOWERS	
Troy-Bilt	11%	Honda	15%
Lawn-Boy	11%	Troy-Bilt	18%
Honda	13%	Craftsman	19%
Craftsman	13%	Lawn-Boy	20%
Murray	13%	Toro	22%
Yard Machines	13%	Snapper	24%
Yard-Man	15%	Husqvarna	24%
Husqvarna	15%	Cub Cadet	26%
Toro	15%		
Poulan Pro	15%		
Cub Cadet	22%		

→ Consumer Reports Annual Product Reliability Survey of more than 40,500 subscribers who bought a new gas-powered walk-behind mower between 2008 and 2014. Our statistical model estimates failure rates for 4-year-old mowers not covered by a service contract and adjusts for the number of hours used over a full year. Differences of fewer than 7 points aren't meaningful. Models within a brand may vary.

How Reliable Is That Tractor or Rider?

We asked readers whether their riding mower broke. Below is the percentage that failed, by brand within type. Kubota and John Deere are among the more reliable tractor brands; Simplicity and Cub Cadet are among the more repair-prone. For riders, Cub Cadet and Husqvarna are among the more repair-prone.

LAWN TRACTORS		ZERO-TURN-RADIUS RIDERS	
Kubota	15%	Kubota	18%
John Deere	18%	John Deere	19%
Snapper	23%	Gravelly	20%
Husqvarna	23%	Toro	21%
Craftsman	24%	Cub Cadet	29%
Ariens	26%	Husqvarna	33%
Troy-Bilt	28%		
Cub Cadet	32%		
Simplicity	33%		

→ Consumer Reports Annual Product Reliability Survey of almost 25,000 subscribers who bought a new riding lawn mower between 2008 and 2014. Our statistical model estimates failure rates for 4-year-old tractors and riders not covered by a service contract and adjusts for the number of hours used over a full year. Differences of fewer than 8 points aren't meaningful. Models within a brand may vary.

Ratings: String Trimmers

Scores in context: Of the 43 string trimmers we tested, the highest scored 83; the lowest, 42. Listed below are the top-scoring models in order of performance. Recommended models offer top performance and specific strengths. CR Best Buys blend value and performance.

☑ CR Best Buy ☑ Recommended

● Excellent ● Very Good ● Good ● Fair ● Poor

A. GAS-POWERED

Recommended	Rank	BRAND & MODEL	PRICE	WEIGHT	ENGINE POWER	SCORE	TEST RESULTS				
							Trimming	Edging	Tall Grass	Handling	Ease of Use
☑	1	Stihl FS 38	\$130	10.5 lb.	27 cc	83	●	●	●	●	●
☑	2	Stihl FS 45	\$150	10.5 lb.	27 cc	82	●	●	●	●	●
☑	3	Husqvarna 223L ①	\$260	10.5 lb.	25 cc	82	●	●	●	●	●
☑	4	Echo SRM-230 ①	\$290	12.5 lb.	23 cc	82	●	●	●	●	●
☑	5	Stihl FS 40 C-E	\$190	11 lb.	27 cc	81	●	●	●	●	●
☑	6	Echo SRM-225 ①	\$220	12 lb.	21 cc	80	●	●	●	●	●
☑	7	Snapper S28BC ①	\$170	14 lb.	28 cc	79	●	●	●	●	●
☑	8	Stihl FS 56 RC-E ①	\$240	12.5 lb.	27 cc	78	●	●	●	●	●
☑	9	Poulan Pro PP25CFA	\$110	12.5 lb.	25 cc	78	●	●	●	●	●
☑	10	Echo GT-225	\$160	10 lb.	21 cc	77	●	●	●	●	●

B. LIGHT-DUTY GAS

☑	1	Homelite UT33600A	\$70	10 lb.	26 cc	73	●	●	●	●	○
☑	2	Weed Eater Featherlite SST25CE ①②	\$90	10.5 lb.	25 cc	69	●	●	●	●	●
☑	3	Homelite UT32650 ①	\$95	10 lb.	26 cc	67	●	●	●	●	○

C. CORDED-ELECTRIC

☑	1	GreenWorks 21142 ①	\$90	9.5 lb.	10 amps	71	●	●	●	●	●
☑	2	Stihl FSE 60	\$110	8.5 lb.	5 amps	70	●	●	●	●	●
☑	3	Black & Decker GH1100	\$70	7 lb.	7 amps	68	●	●	●	●	●
☑	4	Black & Decker GH2000	\$70	7 lb.	7 amps	68	●	●	●	●	●

D. CORDLESS-ELECTRIC

☑	1	Ryobi RY40220 ①	\$180	11.5 lb.	40 volts	75	●	●	●	●	●
☑	2	Ryobi RY24210A ①③	\$130	8 lb.	24 volts	74	●	●	○	●	●
☑	3	Stihl FSA 65 ④	\$510	8 lb.	36 volts	72	●	●	●	●	●
☑	4	EGO ST1201 ①	\$200	9.5 lb.	56 volts	71	●	●	○	●	●
☑	5	Toro 51488 ①	\$190	9.5 lb.	48 volts	70	●	●	●	●	○
☑	6	Black & Decker LST136 ①③	\$170	7 lb.	36 volts	66	●	●	○	●	●
☑	7	Ryobi RY40210 ①③	\$170	9 lb.	40 volts	66	●	●	○	●	●

① Straight shaft; others are curved. ② Fixed-line head; others are automatic or bump-feed. ③ One line; others have two.

④ Price includes battery and charger, sold separately.

Choose the Best Trimmer for Your Needs

The winners in our most recent tests start with fewer pulls and offer fast cutting even in tall grass and weeds. But the standouts are the latest battery-powered string trimmers. With new highs in voltage, they offer performance rivaling some gas-powered models. The downside: They often also match the gas models for weight and price.

TOP PERFORMERS

- **A1 Stihl** \$130 **CR Best Buy**
- **A7 Snapper** \$170 **CR Best Buy**
- **A9 Poulan Pro** \$110 **CR Best Buy**

Our best overall, the curved-shaft A1 starts easily, and its engine is certified to stay efficient longer than many others. A7 had generally top-notch cutting and is well-priced for a straight-shaft model. A9, a relative bargain, didn't edge quite as cleanly but was especially easy to use—and was fairly quiet for a gas trimmer.

BEST FOR LESS-FREQUENT TRIMMING

- **B1 Homelite** \$70 **CR Best Buy**
- **B2 Weed Eater** \$90 **CR Best Buy**
- **D1 Ryobi** \$180 **CR Best Buy**

B1 is a light-duty, curved-shaft gas trimmer that matched the top-ranked models for about half the price. B2 was impressive for trimming and edging, but its dual 0.095-inch lines stood out best against tall growth. Moreover, its fixed-line cutting head helps avoid jams and tangles. Choose the battery-powered, straight-shaft D1 to avoid the maintenance of a gas trimmer. The 40-volt unit was stellar for trimming and edging—though it's heavy.

BEST FOR LIGHT USE WITHIN RANGE OF A POWER OUTLET

- **C1 GreenWorks** \$90 **CR Best Buy**
- **C2 Stihl** \$110

Have a small yard with edges you can reach with a 100-foot extension cord? The straight-shaft C1 did great for trimming and tall-growth cutting. Among curved-shaft models, C2 isn't a price leader but edged out the competition overall.



Take Back Your Garage

You can stash your stuff *and* have room for your cars

“THE GARAGE IS WHERE clutter goes to die,” jokes Amanda M. LeBlanc, a professional organizer in Birmingham, Ala.

Many of you said the same thing in our recent nationwide poll of almost 1,000 garage owners. Filled with tools, lawn mowers, sports equipment, and more, the garages of 62 percent of Americans are crowded, disorganized, or a mess. Shocker: Almost a third of us don’t park our car in the garage no matter how large, and only 25 percent of people with three-car garages actually park three cars there.

Sound familiar? Even if you can still squeeze into your garage, getting from the car to the house shouldn’t be an obstacle course. Help is at hand.

First, cull (be ruthless). Then plan.

Divide items in your garage into four groups: sell, donate, trash, and keep. That will give you a better idea of how much storage you need, and what kind. And if you call in a pro to install a system, you won’t wind up with one that’s more extensive and expensive than necessary.

Overall, your objective in this step is to get as much as you can off the garage floor and onto the walls or shelves. With that done, you can start planning. Ask yourself whether you prefer to store items behind closed doors, on open shelves, or a mix of both. Also, are there items cluttering up indoor living spaces that you’d like to store in the garage? And last, think

about future needs. If you own a Mini but will be trading it in for an SUV, or vice versa, consider the size of future cars.

Remember to allow for the swing of car doors, plus room to exit and enter, when measuring. That way you’ll know how many linear feet are actually available for storage. Typically, the wall facing the hood will have room for deep shelves or cabinets, but side walls will have space only for shallow storage.

Consider our four scenarios on the following pages, no matter what you’re storing. Tackle one problem or all of them if you’re feeling ambitious. Then you might be able to park your car—or even another car—in your garage.

1 FOR DIY-ERS: EVERYTHING IN ITS PLACE

A whopping 78 percent of people surveyed store tools or a workbench in their garage, and 44 percent use the space as a workshop. A slat wall, wire grid, or pegboard will keep your tools in plain sight. Opt for cabinets with doors and drawers if you prefer things to be stowed away or you want to keep them from young children. Unless you have an oversized garage, cabinets that are 24 inches deep and a workbench will probably fit only at the rear of the garage.

- If space is a premium or you maintain your own car, consider tool cabinets on wheels, which you can move into the center of the garage or the driveway.
- A workbench that lets you adjust the height is handy for different jobs and for users of different heights.
- Consider a workbench with a sealed, laminate, or plastic surface. Those types resist stains best, according to our tests. A wood or metal table is also a good option.

2 FOR GARDENERS: CORRAL YOUR GEAR

You'll probably want wall storage and shelves for hand tools, potting soil, peat moss, and fertilizer. Lawn mowers and heavy pots will need space on the floor. If you need a new mower, consider the Toro 20339 SmartStow, \$350. It can be stored upright to save space and performed very well in our tests, though it was a bit difficult to push, pull, and turn. Check out our other mower picks on page 36.

- Use a wall system for your rakes, hoes, and other tall items. An ideal place is along a side wall because those items don't protrude much. Mount trowels, bulb planters, and other hand tools on a pegboard, either on individual hooks or perhaps in wire or clear plastic bins for visibility.
- If there's space, consider a potting bench along the back wall, with some grow lights. Benches made of cedar, cypress, or galvanized steel will stand the test of time.

3 FOR SPORTS EQUIPMENT: MAKE IT EASY

"If kids have to open a door, put in something, and close the door, forget it," says Derrek Holland, who owns The Closet Doctor in Lincoln, Calif. "They'll leave it on the floor." A slat wall, track, or grid system can be fitted with hooks for specialized holders for balls, mitts, backpacks, rackets, skateboards, skis, bikes, and more. You can also mount hooks and other holders directly on the wall. Ditto for pegboards, which also come in galvanized steel. More tips:

- A slat wall or grid system allows you to easily raise hooks and accessories as kids get taller.
- Wall-mounted wire baskets, mesh bags, and clear, open bins stow items in clear view.
- An exception to the keep-the-floor-clear rule is a floor bike rack, which allows youngsters to ride right into the garage and park. When they're older and stronger, swap it for a wall-mounted rack.



No kids? Consider suspending bikes from the ceiling with a bike lift, either motorized or manual.

- A hoist allows you to get your canoe or kayak up and down without damaging it or harming yourself in the process. Be sure to check the weight that the units can hold as well as the head room your garage door needs.

What's in the Typical Garage?



Power tools, hand tools, workbench

78%



Lawn mower, gardening equipment and supplies

68%



Bicycles, scooters

59%



Exercise/sports gear

55%



Cleaning supplies

47%



Seasonal decorations/off-season clothing

45%



4 'TIS NOT THE SEASON: STOW RARELY USED ITEMS

The ceiling has become the new frontier in garage storage, with systems designed to hold items as varied as hurricane shutters, big coolers, and surfboards. Overhead storage is an economical alternative to a cabinet for large, long, and relatively flat objects.

- A ceiling-mounted shelf is the ideal place for such lightweight items as holiday decorations and out-of-season clothing. Most are designed to allow plastic bins to sit securely in slots. Mesh sides add another measure of stability.
- For bulk purchases, keep extra cleaning supplies and nonperishable foods near the inner door to the house.

- Paper records can go into bins, but the weight makes them better for a shelf mounted high on a wall rather than above a car. Some rail-storage systems have wall braces and accommodate bins above.
- Use clear plastic bins to hold more than one type of item. Opaque bins are fine for out-of-season clothes, old business records, etc., if they're clearly labeled.



Children's toys
or lawn games

40%



Camping
equipment

37%



Furniture

26%



Nonperishable
food

17%



Electric
generator

14%



Boat, canoe,
kayak

8%

Storage Smarts: 5 Options

Depending on how many components you select and which types, you should be able to outfit two walls in a standard garage with open shelving for \$1,000 to \$2,000. Adding some cabinets will probably push the cost above \$2,500, as will hiring an installer.

1 The most basic and inexpensive approach is to simply **install hooks, baskets**, or other devices directly on a wall, using appropriate fasteners for studs, concrete/cement blocks, or gypsum board surfaces. Pegboard (now also available in sleek galvanized steel) with an array of hooks and fasteners is another easy and inexpensive option.

2 A **track system** can simply be a horizontal rail that allows you to attach various kinds of hooks, baskets, or mesh bags; others can also support cabinets or shelving. The highest-quality tracks are made of steel, preferably with an enamel coating, which can handle more weight and won't rust unless scratched. You can reconfigure the system as your needs change.

3 **Wire grids** are usually made of metal with an epoxy or vinyl coating, although some are made of a strong polymer that looks like brushed chrome. Wall grids come in a variety of sizes, can be mounted vertically or horizontally, and come in different strengths to handle different weight requirements. When fitted with hooks, fasteners, and accessories, they can hold almost any item you want to stow. Reposition fasteners and accessories at any time or even move the grid up the wall as your kids grow.

4 **Slat walls**, originally made of melamine clad particleboard or medium-density fiberboard for store displays, are the latest trend in garage storage. And now they also come in aluminum, PVC, resin, and steel, all of which are more durable than melamine. Horizontal grooves in the board accept baskets, bins, hooks, and other accessories. You can go whole hog by lining an entire wall with 4x8-foot panels. Some systems offer cabinets that can be mounted right on a slat wall and repositioned as

desired. Or run two, four, or more horizontal slats at selected points on the wall.

5 **Cabinet options** include melamine laminated on MDF or plywood, injection-molded resin, or steel. Laminated cabinets may not hold up well if your workshop area gets a lot of use or is exposed to frequent moisture. Ditto organizers with cardboard backs. Avoid thin, flexible plastic cabinets; the shelves may sag, and the doors may not close properly. Thin steel cabinets can have similar problems. Look for thicker, lower-gauge steel, which is stronger.

Hanging cabinets reduce the likelihood of moisture transfer from the garage floor, which can delaminate melamine cabinets and rust steel ones. Hanging cabinets also ensures that they will be level; otherwise, the slight downward pitch of the floor that diverts water toward the garage doors means the cabinets may not line up perfectly and the doors may be more difficult to open. Some companies add front legs to deep cabinets for added support. Sliding cabinet doors make access easier than swinging doors when a car is parked nearby.

3 Things You Shouldn't Keep in Your Garage



A REFRIGERATOR OR FREEZER

When your garage is cold, the machine's compressor won't run long enough to properly cool the freezer. When the garage is hot, the fridge will work overtime to stay cool, driving up your electric bill. **43 percent keep a fridge in the garage.**



GASOLINE OR OIL

Pilot lights, like those on a water heater, and flammable vapors are the problem here. The vapors could cause a fire or an explosion. Even in a detached garage, you want to be sure that gas is stored in an approved container. Keep only as much gas as you'll use in a few weeks. **52 percent keep paint in the garage.**



PAINT OR SOLVENT

Wide temperature swings can damage paint. Cold is especially bad because it can freeze the water in paint. **53 percent keep it in the garage.**

Tips for a Smooth Installation

No matter the storage system and the clarity of the directions, a second set of hands will usually make the work easier. These simple—though often ignored—steps can help avoid problems:

- Plan to spend several hours assembling and installing a unit.
- Read all of the directions before you start putting the pieces together.
- Find and mark wall studs before attaching anything to the walls. Most studs are 16 inches from center to center.
- Do an inventory of the parts. If something

is missing, it's better to find out early so that you can request a replacement. If it's a crucial part, you might want to wait until it arrives to get started.

- Measure twice, cut once. Before you cut wall brackets and other pieces, make sure that your measurements are accurate.
- Use a cordless screwdriver or drill to speed the work of driving many screws.

→ SEND YOUR TIPS AND PHOTOS FOR PUBLICATION
Inspired by our organization advice? Please send your garage storage before-and-after photos to garagemakeover@cr.consumer.org.

Lab TESTS

WHY DIY?

Anyone who suffers from “white-coat hypertension” or is trying to control their blood pressure can benefit from home monitoring.

BEST BP MONITOR

The Rite Aid Deluxe Automatic, \$60, got excellent scores for accuracy in our tests.

WRAP IT UP

Make sure the cuff fits your upper arm properly; an adjustable cuff helps with larger arms.

IN A HEARTBEAT

Cuff 'em, 10,752 times. That's how many readings our testers took in order to find the best home blood pressure monitors. We also uncovered the top blood glucose meters. See them all on page 48.

PHOTOGRAPH BY LEVI BROWN

You, by the Numbers

They're called vital stats for a reason. Monitoring your blood pressure and blood sugar levels at home may keep you out of the hospital.

CHANCES ARE you or someone you care about has high blood pressure or diabetes. About one in three American adults has high blood pressure (including about 69 percent of people 65 and older), and one in 10 of us has diabetes. Both diseases multiply the risk of heart attack, stroke, and premature death. But routinely measuring your numbers with a home testing device can help keep those problems under control, which can help keep you alive.

"Patients get immediate feedback, and they can see if their medications or lifestyle changes are working," says Marvin M. Lipman, M.D., Consumer Reports' chief medical adviser. That can have many health benefits. For example, one study found that people who monitored their blood pressure at home were less likely to need multiple drugs to control their levels (27 vs. 43 percent), and more patients were able to stop taking the drugs entirely. And people with diabetes who track their levels may lower their risk of diabetes-related complications.

Our latest tests found worthy monitors and meters. Here's what you need to know.

Blood Pressure Monitors

How we tested them. Thirty-two Consumer Reports staffers—men and women of different ages and blood pressure ranges—had their readings taken every day on their left or right side for about five weeks. Each person used a different monitor each day. We compared their readings with those taken with a mercury sphygmomanometer, which is used in doctors' offices, to measure accuracy. Other factors we considered are ease of use and comfort. A few highlights:

Arm models work better. Wrist monitors were usually less accurate than arm models, perhaps because it's more difficult to ensure that they are properly aligned at the level of your heart. Six of the seven wrist models we tested did not earn an excellent rating for accuracy, and we can recommend only one: the Omron 7 Series BP652, \$70, which detects when the cuff is properly aligned. By contrast, we found five arm models to recommend, including two CR Best Buys (see chart).

Check the fit. Before buying an arm model, make sure it has a cuff that fits your upper arm. Most devices fit arms at least 9 to 13 inches in circumference, but about 45 percent of men and 30 percent of women need a different size. So consider models that fit several sizes, allowing multiple people to use the same machine without changing cuffs; some include two cuff sizes instead.

Get accurate readings. Optimal blood pressure is an upper (or systolic) number below 120 millimeters of mercury (mmHg) and a lower (or diastolic) number below 80 mmHg. (The higher number shows the pressure when your heart beats; the lower number, the pressure between beats.) According to our experts at Consumer Reports Best Buy Drugs, people younger than 60 should generally start drugs if the numbers remain above 140/90; older people, above 150/90. But levels can vary a lot.

Take these steps to make your readings, at home and in the doctor's office, accurate:

- Go the bathroom first.
- Don't smoke, exercise, or consume anything caffeinated for at least an hour beforehand.
- Sit quietly for 5 minutes before the reading. Keep your legs uncrossed, your feet flat on the floor, and your back supported.
- Pull up your sleeve so that the cuff goes around your bare arm. Rest your arm on a table so that the cuff is at heart level.
- Remain quiet during the test.
- Measure at the same time each day, preferably morning, when it's usually highest.

WHO SHOULD MONITOR AT HOME?

- People with high blood pressure.
- Others who should consider monitoring include seniors (whose levels can vary), people with "white-coat hypertension" (levels that spike in a doctor's office), and diabetics (for whom blood pressure control is extra important).



The Up & Up Blood Glucose Meter (Target), \$15, is a CR Best Buy and has the lowest annual test-strip cost among recommended models.



The Omron 7 Series, BP652, \$70, is our highest-rated wrist monitor and is tops overall in comfort.

Blood Glucose Meters

How we tested them. Fifteen staff volunteers, some with diabetes, fasted for at least 3 hours, then had blood drawn in our labs. To measure accuracy, drops of fingertip blood were distributed among test strips for each model and compared against readings taken on a standard lab analyzer. Other factors we considered were how easy the meters were to use and how consistent they were from test to test.

The Food and Drug Administration requires that all home glucose meters be accurate within 15 percent of lab readings. All of the meters we tested had average scores that met that standard. But the ones we recommend do even better: They had average measurements within 6 percent of lab results. All can also display readings as averages and put date and time stamps on the results. Some highlights:

Don't focus on the meter's price. Our top meters range from \$15 to \$75, but the real cost is the test strips. They can add \$2,410 per year if you test yourself four times per day, and health insurance does not always cover the cost. Our two CR Best Buys have an annual test-strip cost of \$525.

Look for these features.

Certain models require you to enter the test-strip codes or insert a chip to calibrate the meter. Our top models do that automatically. Also check whether a model can store at least 360 readings and whether it offers a meal marker that allows you to add notes.

WHO SHOULD MONITOR?

Our health experts say that anyone on insulin should monitor frequently at home, as should pregnant diabetics. Those taking oral diabetes drugs should discuss the frequency of testing with their doctor.

Think Twice Before Going Wireless

Wireless blood pressure monitors and blood glucose meters aren't quite ready for prime time.

Accuracy suffered in the two wireless blood pressure monitors we tested: the **Withings Wireless BP801**, \$130, and the **QardioArm**, \$99.

Wireless blood glucose meters had their own problems. The **iHealth Align BG1**, \$17, plugs into a compatible Apple device, but it can be complicated: Users have to first scan a bar code on the test-strip vial with their iPhone camera, and that can be difficult, especially if you don't have a newer iPhone. And results appear

only on your smart device; the meter does not have its own screen. Plus its accuracy score was the lowest of all of the models we tested.

The **iHealth Wireless BG5**, \$30, was more accurate, but not enough to be recommended. Users must also scan the bar code with their phone, which can be difficult on older iPhones.

If you want to download readings to your computer so that you can share them with your doctor, consider our recommended models. All except for the **ReliOn Micro (Walmart)**, \$15, provide that feature.

Ratings: Blood Pressure Monitors

Scores in context: Of the 24 monitors tested, the highest scored 85; the lowest, 11. Listed below are the top models in order of performance. CR Best Buys blend value and performance.

✓ CR Best Buy
 ☑ Recommended ● Excellent ● Very Good ○ Good ● Fair ● Poor

A. ARM MONITORS

	BRAND & MODEL	PRICE	SCORE	TEST RESULTS			FEATURES			
Recommended				Accuracy	Convenience	Comfort	BPRisk Category Indicator	Multiple User Memories	Two Cuffs, or One That Fits Most	Can Download Memory
✓	Rite Aid Deluxe Automatic BP3AR1-4DRITE ^{1 2}	\$60	85	●	●	○			•	
☑	iHealth Dock BP3	\$80	84	●	●	●	•	•		•
☑	Omron 10 Series BP786	\$75	84	●	●	●	•	•	•	•
☑	A&D Medical UA767F	\$70	83	●	●	●	•	•	•	
✓	ReliOn BP200 HEM741CRELN3 (Walmart)	\$40	82	●	●	●	•	•	•	

B. WRIST MONITORS

	BRAND & MODEL	PRICE	SCORE	TEST RESULTS			FEATURES			
Recommended				Accuracy	Convenience	Comfort	BPRisk Category Indicator	Multiple User Memories	Two Cuffs, or One That Fits Most	Can Download Memory
☑	Omron 7 Series BP652	\$70	84	●	●	●	•	•	•	

¹ The scoring scheme has changed since the last test, so some models may have shifted in rank. ² Replacement cuffs for all of the models listed in the Ratings should be available through the manufacturer.

Ratings: Glucose Meters

Scores in context: Of the 30 meters tested, the highest scored 87; the lowest, 35. Listed below are the top models in order of performance. CR Best Buys blend value and performance.

✓ CR Best Buy
 ☑ Recommended ● Excellent ● Very Good ○ Good ● Fair ● Poor

	BRAND & MODEL	PRICE	SCORE	TEST RESULTS			FEATURES			
Recommended				Accuracy	Repeatability	Convenience	Annual Strip Cost, 4 Tests/Day	Memory of 360 or More Readings	Meal Markers	
☑	FreeStyle Lite ¹	\$20	87	●	●	●	\$2,410	•		
☑	FreeStyle Freedom Lite	\$20	86	●	●	●	\$2,410	•		
☑	Bayer Contour Next	\$20	85	●	●	●	\$1,460	•	•	
☑	Well at Walgreens True Metrix	\$22	84	●	●	●	\$1,225	•	•	
☑	Bayer Breeze 2	\$25	84	●	●	●	\$1,900	•		
✓	Up & Up Blood Glucose Meter (Target)	\$15	83	●	●	●	\$525			
☑	Accu-Chek Aviva Plus	\$30	82	●	●	●	\$2,115	•	•	
✓	ReliOn Micro (Walmart)	\$15	82	●	●	○	\$525		•	
☑	Accu-Chek Compact Plus	\$75	82	●	●	○	\$2,030	•	•	
☑	TrueResult Blood Glucose Monitoring System ²	\$18	82	●	●	●	\$1,020	•		

¹ The scoring scheme has changed since the last test, so some models may have shifted in rank. ² Also available under pharmacy brand names.

Small Tablets at Small Prices

Why the 8-inch screen may be your best bet

THINKING SMALL IS THE BIG THING in tablets these days. Our latest tests of devices with screens 8 inches or smaller revealed lots of great developments: beautiful displays for movie lovers, more options for Microsoft Windows users, and—best of all—low prices.

Take the Lenovo Yoga 2, \$350 for the 32-gigabyte version. It's now the most portable option for Windows users. Or consider the gorgeous visuals offered by OLED-equipped tablets made by Samsung and Dell.

The new displays are particularly attractive for anyone who uses a tablet for watching movies and videos. Typical LCDs combine a backlight that's always on with liquid-crystal shutters that control how much light the viewer sees at each point on the screen. In contrast, OLED displays

use individual LEDs that emit light at varying levels of intensity. (The acronym stands for organic light-emitting diode.) When an OLED pixel is turned off, it's really off. You get blacker blacks, and images look much richer.

We had some quibbles with the new machines. On an 8-inch Windows tablet, some controls can be uncomfortably small in desktop mode; using tablet mode when it's available solves that problem. And those gorgeous OLEDs can appear dimmer than LCDs when there's a lot of white in a picture—though we think that's a good trade-off.

As for price, going small will give shoppers access to several decent sub-\$200 tablets. And that means you can get a movie- and game-playing, Web-browsing tablet for what people used to pay for an e-reader that displayed only books.



Samsung
Galaxy
Tab S 8.4

Pick the Model for Your Needs

FOR MOVIE LOVERS

- **A2 Samsung** \$400
- **A3 Samsung** \$280
- **A5 Dell** \$400

The great-looking displays and particularly the blacker blacks in A2 and A5 make them well-suited for movie watching. Not surprisingly, you'll pay a premium for those tablets, which have OLED technology. But they have a lot to offer beyond that. A5 is the thinnest—by a hair—tablet we've tested. It and A2 have very long battery life. And if you want to save a few bucks, A3 costs \$120 less than the OLED models and still has an excellent display and long battery life.

FOR WINDOWS USERS

- **A8 Lenovo** \$350

A8, the most portable option for Microsoft Windows fans, delivers a long, 11-hour battery life and excellent performance that will stand up to demanding games. But the Yoga's big selling point, as its name suggests, is flexibility. You can lay it on a table at a slight angle, stand it upright, or hang it from a hook near your worktable. (Larger Windows machines include the \$1,000 13-inch Microsoft Surface Pro 3 and \$500 11-inch Dell Venue 11 Pro.)

FOR THE BUDGET-MINDED

- **A9 Amazon** \$180 **CR Best Buy**
- **A12 Dell** \$130 **CR Best Buy**

Tablet prices have been falling, and you don't have to make huge sacrifices if you choose one of these lower-cost models. Despite its low price, A9 brings excellent performance and a great display to the table. A12 is also a top-notch performer, with more than 12 hours of battery life.

Ratings: Tablets

Scores in context: Among the 46 models tested in this category, the highest scored 87; the lowest, 52.

☑ CR Best Buy ☑ Recommended

● Excellent ● Very Good ● Good ● Fair ● Poor

A. TOP 7- TO 8-INCH-SCREEN TABLETS, WI-FI ONLY

Rec.	Rank	BRAND & MODEL	PRICE	SCORE	TEST RESULTS			SPECS		
					Portability	Display	Performance	Battery Life (hr.)	Operating System*	Memory-Card Reader
☑	1	Sony Xperia Z3 Compact Tablet (Wi-Fi, 32GB)	\$500	87	●	●	●	16.0	A	●
☑	2	Samsung Galaxy Tab S 8.4 (Wi-Fi, 16GB)	\$400	87	●	●	●	11.9	A	●
☑	3	Samsung Galaxy Tab Pro 8.4 (Wi-Fi, 16GB)	\$280	84	●	●	●	10.8	A	●
☑	4	Apple iPad Mini 3 (Wi-Fi, 64GB)	\$500	83	●	●	●	13.2	I	
☑	5	Dell Venue 8 7000 (Wi-Fi, 16GB)	\$400	83	●	●	●	13.2	A	●
☑	6	Apple iPad Mini 2 (Wi-Fi, 16GB)	\$300	81	●	●	●	12.8	I	
☑	7	Lenovo Yoga Tablet 2 (8") (Android) (Wi-Fi, 16GB)	\$250	80	●	●	●	12.3	A	●
☑	8	Lenovo Yoga Tablet 2 (8") (Windows) (Wi-Fi, 32GB)	\$350	79	●	●	●	11.1	W	●
☑	9	Amazon Kindle Fire HDX 7" (Wi-Fi, 16GB)	\$180	78	●	●	●	9.6	A	
☑	10	Nvidia Shield Tablet (Wi-Fi, 16GB)	\$300	78	●	●	●	9.8	A	●
☑	11	Lenovo S8-50 (Wi-Fi, 16GB)	\$180	77	●	●	●	8.6	A	●
☑	12	Dell Venue 7 3000 (Wi-Fi, 16GB)	\$130	77	●	●	●	12.2	A	●
☑	13	LG G Pad 7.0 (Wi-Fi, 8GB)	\$150	76	●	●	●	15.9	A	●
☑	14	EVGA Tegra Note 7 (Wi-Fi, 16GB)	\$160	76	●	●	●	10.1	A	●
☑	15	Samsung Galaxy Tab 4 8.0 (Wi-Fi, 16GB)	\$220	76	●	●	●	14.4	A	●
☑	16	HP Slate8 Pro (Wi-Fi, 16GB)	\$300	75	●	●	●	9.6	A	●
☑	17	LG G Pad 8.3 (Wi-Fi, 16GB)	\$250	75	●	●	●	6.9	A	●

*A=Android; I=iOS; W=Windows.

Road REPORT

V-DAY

Victory motorcycles lead the pack in handling, comfort, and overall satisfaction.

BREAKING IT DOWN

Japanese bikes, along with Victory, had an advantage in cost of repairs.

WHERE'S HARLEY?

Right below Victory when it comes to owner satisfaction.



HAPPY TRAILS TO YOU

For true believers, two wheels beat four any day. Our latest survey shows that American-made Victory bikes have the happiest owners—but Japanese brands are more reliable overall. See page 52.



Both Victory and Harley-Davidson had high satisfaction ratings; 72 percent of Harley owners said they'd buy again.

Road Warriors

Looking for a great bike? Japanese brands have the edge when it comes to staying out of the repair shop. But made-in-USA Victory motorcycles have the happiest owners.

FOR SOME, the allure of the open road, a rumbling exhaust, and the wind in your face are irresistible. Throw in camaraderie, lifestyle, and spirit of adventure, and it's easy to understand motorcycle riding's escapist appeal.

Over the years, motorcycles have increased in refinement, sophistication, comfort, and safety. That makes them both more accessible to entry-level bikers and treats for empty-nesters who see the new machines as more rideable than the ones they remember.

The motorcycle landscape, though, is changing. The recession took a 50 percent bite out of sales (to about 560,000 units per year), and they have not recovered. The average age of bikers has crept up slightly to 43. But also, the ratio of female bikers has doubled to 12 percent of the riding population in the past decade.

With those demographics in mind, Consumer Reports surveyed owners to find out two things: how reliable top-selling brands are in terms of frequency of repair and how happy those brands make their owners.

What we found is that reliability and

satisfaction are not necessarily tied together. The most beloved bike belonged to an American brand—Victory—even though it was not among the more reliable brands. That distinction belongs to the perennially strong Japanese-built machines.

Why Reliability Matters

The last thing a biker wants to worry about is a breakdown on the open road. Choosing a bike from a brand with a better-than-average reliability track record can tilt the odds in your favor. But the reality is, things can and sometimes do go wrong.

Consumer Reports' survey of our subscribers shows that the Japanese brands are significantly more reliable than most bikes from other regions—led in order by Yamaha, Suzuki, Honda, and Kawasaki. Domestic brands Victory and Harley-Davidson were midpack, and Triumph, Ducati, BMW, and Can-Am were the more trouble-prone brands.

Our survey of subscribers who reported on more than 12,300 motorcycles from model

years 2008 to 2014 also showed that bike categories have differing levels of reliability. For this analysis, we adjusted for mileage driven over a 12-month period and estimated repair rates for 4-year-old models without a service contract.

Where the Seat Meets the Street

But owner satisfaction—i.e., happiness—is an entirely different measure from reliability. Eighty percent of Victory owners said they would definitely buy the same bike if they were to do it all over again. Harley-Davidson owners were quite happy, with 72 percent responding likewise, trailed closely by Honda at 70 percent. All other brands were below 70 percent.

If you want to know how satisfied riders are with their motorcycle, ask them about comfort. We found that comfort ratings track most closely with overall satisfaction scores. And among the 10 brands surveyed, only Victory earned our highest rating for comfort; it also beat out the other brands for overall

satisfaction and got a top mark in almost every category.

Ducati, Kawasaki, Suzuki, and Triumph each garnered our lowest mark for comfort.

Most other satisfaction categories—acceleration, fun, and styling—saw close ratings across the brands. But there was one exception when it came to handling. The Can-Am, from Canadian maker BRP, with its distinctive three-wheelers (or trikes), was judged to have average handling satisfaction—a lower rating than every other brand.

Set Aside \$400 for Repairs

Cruisers appear to require fewer repairs than other types of motorcycles, with just a 15 percent failure rate by the fourth year of ownership. The range of problems from cruiser, dual-sport/adventure, standard, touring, sport touring, and sport bikes ranged from 15 to 23 percent, in that order. But none is statistically more failure-prone than the others.

At the other end of the spectrum, three-wheeled bikes had significantly greater risk of repairs, especially those with two front and one rear wheel. Can-Am, which makes only trikes, was almost twice as likely to experience a problem as most other types of motorcycles.

Among those bikes needing repair, 45 percent incurred no expense—suggesting that many riders are performing the work themselves or having the bikes repaired under the original manufacturer's warranty.

Of those that did incur out-of-pocket expenses, the average motorcycle repair bill was \$342, with the cost being heavily dependent on brand and type. For those brands that we have adequate data on, median repair costs ranged from \$269 for Kawasaki to \$455 for BMW. Dual-sport/adventure bikes and cruisers were less expensive to repair, costing \$313 and \$322 on average, and sport touring models were pricier at \$383.

We realize that buying a motorcycle is often more about passion than practicality; even so, our findings can help you make an informed purchase decision. If you're riding locally, and usually with friends, reliability may matter less than if you intend to take long-distance trips. Your own wrenching talents and proximity to repair shops can also factor in.

The main takeaway is that no matter which brand you favor or type of motorcycle you buy, squirreling away \$400 to cover surprise repairs would be wise. And if you plan to customize your bike, leave the complicated work to the professionals.

How Often They Go To The Repair Shop

The traditional Japanese stalwarts topped our list of reliable brands. But upstart American brand Victory is right on their tailpipes.

BRAND	PERCENT FAILED
Yamaha	11%
Suzuki	12%
Honda	12%
Kawasaki	15%
Victory	17%
Harley-Davidson	26%
Triumph	29%
Ducati	33%
BMW	40%
Can-Am*	42%

*Manufactures three-wheeled motorcycles, also known as trikes.



Yamaha YZF-R1



Can-Am Spyder ST

Would Owners Buy It Again

● Better ← → Worse

A reliable motorcycle is not necessarily the same thing as a bike that makes its rider happy. Some owners even overlook negative traits when asked about satisfaction.

Brand	Owner Satisfaction		Satisfaction Details						
	Overall Rating	% Definitely Buy Again	Fun	Styling	Acceleration	Handling	Cost of Maintenance and Repair	Comfort	
Victory	🔴	80%	🔴	🔴	🔴	🔴	🔴	🔴	
Harley-Davidson	🔴	72%	🔴	🔴	🔴	🔴	🔴	🔴	
Honda	🔴	70%	🔴	🔴	🟡	🔴	🔴	🟡	
BMW	🟡	68%	🔴	🔴	🔴	🔴	🔴	🟡	
Can-Am	🟡	67%	🔴	🔴	🔴	🟡	🔴	🔴	
Ducati	🟡	66%	🔴	🔴	🔴	🔴	🔴	🔴	
Yamaha	🟡	65%	🔴	🔴	🟡	🔴	🔴	🟡	
Triumph	🟡	63%	🔴	🔴	🟡	🔴	🟡	🔴	
Kawasaki	🟡	59%	🔴	🔴	🟡	🔴	🔴	🔴	
Suzuki	🟡	58%	🔴	🔴	🟡	🔴	🔴	🔴	

The Things That Go Wrong

The parts that tend to malfunction and need repair are concentrated in a few main areas.

REPAIRED PARTS	PERCENT OF REPAIRED MOTORCYCLES	REPAIRED PARTS	PERCENT OF REPAIRED MOTORCYCLES
Electrical system	24%	Drive system	6%
Accessories	19%	Valvetrain	5%
Brakes	18%	Front suspension	5%
Fuel system	13%	Cooling system	4%
Clutch	8%	Piston	4%
Body panels	6%	Transmission	4%

Results are based on Consumer Reports' 2014 Annual Autos Survey, with more than 11,000 subscribers reporting on more than 12,300 motorcycles. In the top table, differences of fewer than 10 points between brands are not meaningful. The statistical model estimates failure rates for 4-year-old motorcycles purchased new and not covered by a service contract. We also adjust for mileage driven over a 12-month period. The mean annual mileage is around 3,800 among all motorcycles included in this analysis. In the middle table, ratings for the attributes displayed under **Satisfaction Details** are based on the proportion of very satisfied owners. Note that models within a brand may vary.

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Status SUVs—at a Price

Can prestige come in a small package? We check out two new luxury-brand compact SUVs. Plus, a trusted, reliable Honda workhorse gets a refresh.

SPORT AND UTILITY. Despite their do-everything, go-anywhere promise, SUVs generally live on the street, carrying briefcases and gym bags more often than slogging expeditionary gear to a far-off destination. So it's no surprise that luxury compact SUVs are a hot commodity. These status-worthy models offer the latest technology, competitive fuel economy, and all-wheel drive for security in inclement weather, and yet they are as agile and

maneuverable as any hatchback. And the premium badge heralds your arrival at the ski lodge or country club. Still, these new tall hatchbacks require premium fuel, have cramped rear seats, don't offer much cargo space, and carry a big price premium over mainstream models. Does a prestige logo actually bring more than a feeling that you're above the hoi polloi? We bought and tested the two newest German models to find out.



MOVING UP

The Q3 delivers leather seats, a sunroof, and a great driving experience.

Audi Q3

Ready for twisty roads and ugly weather

77

Many luxury brands are marketing high-riding hatchbacks and wagons as SUVs, but Audi's entry actually delivers. The Q3's design lets you sit higher, with a commanding driving position that the swept-back BMW X1 and Mercedes-Benz GLA lack. And let's face it, where your posterior is planted relative to other drivers is a prime reason folks buy SUVs.

With the Q3's tall doors, you can easily hop in and out. But things get tight once you're behind the wheel. Front-seat occupants are likely to bump elbows—think of a coach-class fight over the center armrest. Taller drivers may feel their knee and hip cramping by the too-close, asymmetrical relationship of the dead pedal to the driver's seat.

Once underway, the Q3 is rewarding to drive. The suspension soaks up ruts and potholes well despite its underlying

firmness. A quiet cabin and supportive seats make even a long commute pleasant. The Q3's nimble and crisp handling makes those narrow, fast two-lane parkways a joy.

The 2.0-liter four-cylinder turbo sends its 200 hp through a six-speed automatic. Getting the Q3 to 60 mph feels faster than the 8.4 seconds it takes; however, its 22-mpg overall fuel economy is not stellar. But come winter, its all-wheel drive will help keep you from spinning your wheels. The Quattro system makes navigating deep slushy snow almost routine.

Front-drive Q3s start at \$32,500, and our Premium Plus Quattro set us back a hefty \$40,125. That price gives you a mostly well-finished interior laid out with German precision, even if there's some hard plastic here and there.

Leather seats and a panoramic sunroof are standard, but some expected features



TESTED VEHICLE

TRIM	Premium Plus Quattro
ENGINE	200-hp, 2.0-liter turbocharged 4-cyl.
FUEL	22 mpg
PRICE	\$32,500-\$38,500

are missing. It has no USB ports—just a proprietary media connector. A power liftgate costs \$400, and the backup camera is part of a \$1,400 option package.

Don't be misled by the Q3's seemingly low price of entry; you'll still have to cough up some cash for the true Audi boutique experience.

STAR BURST

The Mercedes GLA is a head-turner but doesn't deliver the luxury goods.



Mercedes-Benz GLA

Deluxe in name only

70

The GLA's \$31,300 base price might seem temptingly low, but it has the feel of buying a Rolex and finding out the expected second hand is an extra-cost item.

In fact, luxury-car basics such as dual-zone climate control, heated seats, and a sunroof are optional. Even with a restrained hand on the options list, the GLA's price can easily pass \$40,000. Ours cost \$42,210.

We understand the appeal for luxury in a small package and the draw of Mercedes' cachet. But if you're expecting real Mercedes qualities—such as a hushed cabin, plush ride, and a solid feel—you'll be very disappointed. In fact, it's difficult to see the GLA's superiority over the similarly sized Mazda3 or Subaru Impreza.

The GLA's sleek silhouette attracts lots of looks but creates major limitations. We were taken aback by the cramped though nicely finished interior. Even average-height drivers found head room skimpy. The rear seat is laughably small, and you're

out of luck if you want to carry serious luggage behind it.

And though the GLA's flash makes you visible to others, you'll have trouble seeing out. The must-have rear-view camera costs an additional \$450. And we wouldn't consider getting a GLA without the \$550 blind-spot monitoring system. Some controls are confusing: It's easy to mistake the column-mounted shifter for a wiper stalk and swat it when it rains, putting the car in neutral. We were also irked at how low in the dash the climate controls are mounted.

Not all is dire. The low-slung GLA handles well, being more like a hatchback than an SUV. In all-wheel-drive form, the GLA is stable, with strong thrust from the 2.0-liter, four-cylinder turbo engine. We got 26 mpg overall, which is quite good for the segment.

Still, this engine and the seven-speed dual-clutch automatic are an unrefined



TESTED VEHICLE

TRIM	GLA250
ENGINE	208-hp, 2.0-liter turbocharged 4-cyl.
FUEL	26 mpg
PRICE	\$33,300-\$48,300

package. Despite a quick 6.9-second 0-to-60-mph sprint, the powertrain often feels half asleep, particularly when the engine is off the turbo boost, and the transmission takes its time finding the right gear.

As a pricey bauble, the GLA works. But after the shine dulls on the three-pointed hood ornament, you'll realize it doesn't deliver the luxury experience you thought you were getting.

What Price Compact Luxury?

A compact crossover SUV may seem like an enticing entry point to a luxury brand. Without being too expensive, those vehicles make a grand entrance, carry a decent list of features, and, ooh la la, that badge. But certain compact luxury SUVs can be a poor value. For instance, a loaded-up mainstream crossover—such as the Honda CR-V (reviewed on the next page)—gives you more bang for the buck. Conversely, for those who can

afford the entry luxury price, spending a few grand more up front, or a few dollars more on a monthly lease, can upgrade you to a midsize luxury SUV that will have more room, a better driving experience, and higher-quality features and materials. The Mercedes GLA we purchased set us back 42 grand all tarted up. But the nicer and larger GLK rings in at about \$47,000. In that case, spending more may be the wiser choice.

ROAD REPORT

Ratings: Luxury Compact and Small SUVs

Scores in context: The highest-rated small luxury SUV scored 85 out of 100 points; the lowest, 61. Recommended models excel in overall road-test score and have average or better predicted reliability. They also perform adequately, if included, in crash tests.

☒ Recommended

● Better ◀ ◻ ◻ ▶ ● Worse

LUXURY SUBCOMPACT SUVs

Recommended	Rank	MAKE & MODEL	PRICE	RELIABILITY	SCORE	TEST RESULTS				HIGHS	LOWS
			As Tested	Predicted	Road Test	Overall MPG	Acceleration, 0-60 MPH, Sec.	Ride/Noise	Cargo Volume (cu. ft.)		
	1	Audi Q3 Premium Plus Quattro	\$40,125	New	77	22	8.4	●/●	24.5	Ride, handling, quietness, fit and finish.	Tight quarters, driving position.
<input checked="" type="checkbox"/>	2	BMW X1 xDrive28i (2.0T)	\$38,795	○	77	23	6.8	○/●	26.0	Acceleration, agility, steering feedback, transmission, fuel economy.	Ride, heavy steering effort, rear visibility, modest interior room.
	3	Mercedes-Benz GLA250	\$42,210	New	70	26	6.9	○/○	23.0	Acceleration, braking, fuel economy, fit and finish.	Ride, noise, uneven power delivery, rear seat, visibility, some controls.
	4	Buick Encore Leather	\$30,555	○	69	23	11.0	●/●	26.0	Ride, quietness, braking, maneuverability, fuel economy, IIHS crash-test results.	Acceleration, driving position, narrow cabin, rear visibility, value.
	5	Mini Cooper Countryman S	\$32,500	●	68	26	8.3	○/○	19.5	Handling, transmission, acceleration, fuel economy, IIHS crash-test results.	Reliability, ride, noise, controls, cargo space, premium fuel, flimsy interior details.

SMALL SUVs

Recommended	Rank	MAKE & MODEL	PRICE	RELIABILITY	SCORE	TEST RESULTS				HIGHS	LOWS
						Overall MPG	Acceleration, 0-60 MPH, Sec.	Ride/Noise	Cargo Volume (cu. ft.)		
<input checked="" type="checkbox"/>	1	Subaru Forester 2.5i Premium	\$26,814	●	86	26	8.7	○/○	35.5	Fuel economy, visibility, braking, roomy interior, access, controls, reliability, IIHS crash-test results.	Unsettled ride, noise.
<input checked="" type="checkbox"/>	2	Toyota RAV4 XLE	\$26,802	●	75	24	9.0	○/○	37.0	Fuel economy, agility, transmission, access, roominess.	Ride, noise, driver's seat lumbar support, headlight switch too easily cancels DRL.
	3	Ford Escape SE (1.6T)	\$28,040	●	75	22	9.9	●/●	35.0	Agility, ride, quietness, solid feel, access.	Reliability, poor IIHS small overlap crash-test results, front-seat comfort, narrow driving position, radio controls.
<input checked="" type="checkbox"/>	4	Nissan Rogue SV	\$29,920	○	74	24	9.5	●/○	31.5	Ride, access, spacious interior, fuel economy, optional surround-view camera, available third-row seat.	Engine noise, cloth front seat lacks support, gets pricey.
<input checked="" type="checkbox"/>	5	Mazda CX-5 Touring (2.5L)	\$28,090	●	74	25	8.0	○/○	33.0	Fuel economy, agility, rear seat, blind-spot detection, IIHS crash-test results, reliability.	Ride, noise, low dash vents.
<input checked="" type="checkbox"/>	6	Honda CR-V EX	\$27,500	●	73	24	9.0	○/○	36.0	Rear seat, lots of room and functionality, active safety features in higher trims, IIHS crash-test results.	Ride, noise, unintuitive infotainment system.

Why certain models are not recommended. The Audi Q3 and Mercedes-Benz GLA are too new for us to have reliability data. The Buick Encore and Mini Cooper Countryman score too low to be recommended. The Ford Escape has much worse than average reliability.



Honda CR-V

Practical and versatile—warts and all

73

In the battle for small-SUV supremacy, the latest salvo comes from Honda, but it doesn't hit the bull's-eye. The CR-V's midlife freshening brings not only a new powertrain but also some degradation in ride comfort and user-friendliness.

The direct-injected four-cylinder engine

and new continuously variable transmission returned 24 mpg overall, just 1 mpg better than last year's model. Although the rubber-band revving of the CVT is well-masked, under hard acceleration the CVT shows its true stretchy nature—with harshly amplified engine noise.

Honda recalibrated the suspension to be more responsive and planted. But that comes at the cost of ride comfort, which used to be among the best in class. The cabin is marginally quieter and better isolated from road roar. Winter playtime proved the all-wheel-drive system to be capable in deep slush.

The freshening brought more features to the widely sold EX trim level, such as a power driver's seat, heated front seats,

and the LaneWatch blind-spot camera. The new Touring trim gets you a power tailgate.

Other virtues remain, such as generous rear-seat room and cargo space, as well as a handy rear-seat folding mechanism.

The newfangled infotainment system is one of the worst we've seen. Unless you get the base LX, the CR-V does away with knobs, instead using unintuitive menus and tiny buttons or onscreen icons.

On the safety front, the CR-V offers features not normally seen in this class, such as forward-collision warning with automatic braking, lane-departure warning, and lane-keep assist—but only on high-end versions.

Despite the transmission quirks, stiff ride, and confusing controls, the CR-V's practicality and affordability still stand.

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Happiness Is a 3-Year Lease

More and more drivers are concluding that they don't need to own. And our survey shows that lessees are almost as happy as buyers.



LEASING A CAR used to be just for the wealthy—or for those who wanted to look the part. Now it has gone mainstream.

Indeed, 23 percent of all vehicle transactions last year were leases, according to the most recent industry data. More car shoppers are discovering that leasing works for satisfying Mercedes tastes on a Mazda budget.

And people who lease seem generally pleased with their decision, according to Consumer Reports' latest Annual Auto Survey, tallying more than 46,845 leased new 2011-15 model year vehicles driven by our subscribers.

We also found, in a follow-up survey regarding 11,215 leased vehicles, that more than half of drivers who are currently leasing also had leased their previous vehicle.

What's more, experienced lessees are far more brand-loyal than other drivers. About 65 percent of lessees in our survey stayed with the same brand when they signed their current

lease. "That's double the amount of those who financed or bought their last car," said Simon Slater, Ph.D., Consumer Reports senior research associate.

Leasing is gaining in allure because shoppers can get a more expensive vehicle for their money. (The reason: Monthly payments are tied only to the car's depreciation rather than to its entire value.) And lease-return programs lend themselves to drivers retaining the same brand because the lessee will need new wheels when the term expires. Also, automakers often offer great incentives.

But does leasing deliver more owner satisfaction than ownership or financing?

When asked a question about value, survey takers who lease are almost as satisfied as those who buy or finance their car.

"Seventy-one percent of those who paid in full were very satisfied with the value of their cars, compared with 69 percent of those who financed and 66 percent of those who leased," Slater said.

As for value, only Ram customers felt their lease was a better value than financing or paying in full. Still, it was a slim difference between lease and purchase customers who felt they got a good deal.

Regardless of whether they bought, financed, or leased their car, BMW and Land Rover drivers are the least satisfied with the value they get with their car. In addition, less than half of Land Rover lessees were very satisfied with the value they get from their car, the only brand to have such a low rating.

Although most automakers offer leases as long as 48 months, 81 percent of survey takers opted for a three-year lease term. Twelve percent opted for 24-month leases, and only 6 percent went for a 48-month term.

Automakers also have done a strong job of using their own captive finance companies to structure lease deals, with 83 percent arranged through the car company's finance arm.

Among lessees whose lease term has ended, 70 percent simply completed their term, 2 percent transferred their lease to another owner, and 28 percent terminated their lease for other reasons. Buying the car outright and trading for a newer or more upscale model were cited as two of the most common "other" reasons.

Another trend: A lot of paid-for miles are going to waste. Only 10 percent of those whose lease ended on time say their car surpassed the mileage limit detailed in their agreement. But 71 percent came in below the limit—in effect those drivers paid too much per mile for their leases.

So which brands satisfy the most? According to our survey, 51 percent of Lincoln lessees say they'll also lease their next vehicle. To be clear, that's to lease any car, not necessarily another Lincoln.

Dodge, Chrysler, BMW, Infiniti, and Mercedes-Benz lessees all follow closely at or near 47 percent. Furthermore, Lincoln, Dodge, and Chrysler lessees are also among the most likely to definitely lease the same car model again (about 40 percent would).

But given past history of brand loyalty of lessees, automakers that make their customers happy in a lease stand a strong chance of retaining those folks the next time around—thus proving the adage that it's cheaper to keep an existing customer than it is to acquire a new one.

Would You Do It Again?

Because the lease turn-in process naturally brings a lessee back to a dealership, the chances for an automaker to retain a customer is higher than for a purchased car.

MAKE	DEFINITELY LEASE NEXT CAR	LIKELY TO LEASE SAME MODEL
LINCOLN	51%	37%
DODGE	47%	39%
CHRYSLER	47%	40%
BMW	47%	33%
INFINITI	47%	30%
MERCEDES-BENZ	46%	35%
JEEP	44%	29%
BUICK	44%	28%
AUDI	42%	34%
HONDA	41%	32%
LEXUS	41%	33%
FORD	41%	29%

Source: 2014 Leasing Recontact Survey of 11,215 vehicles.

MAKE	DEFINITELY LEASE NEXT CAR	LIKELY TO LEASE SAME MODEL
CADILLAC	40%	25%
SUBARU	40%	29%
ACURA	39%	29%
GMC	39%	22%
VOLKSWAGEN	37%	25%
CHEVROLET	37%	28%
NISSAN	36%	23%
HYUNDAI	35%	23%
KIA	34%	25%
TOYOTA	34%	24%
VOLVO	33%	21%
MAZDA	33%	25%

Leasing Percentage By Automaker

Leasing favors luxury brands because monthly payments are tied only to a vehicle's depreciation rather than to its sticker price. That allows mainstream budgets to get more for their monthly payment.

MAKE	NEW CARS THAT ARE LEASED
JAGUAR	38%
INFINITI	37%
BMW	35%
MERCEDES-BENZ	35%
LINCOLN	34%
CADILLAC	34%
LEXUS	27%
AUDI	23%
BUICK	22%
ACURA	21%
LAND ROVER	20%
NISSAN	20%
PORSCHE	18%
CHRYSLER	17%
VOLKSWAGEN	17%
VOLVO	16%
JEEP	15%
DODGE	14%
KIA	14%
GMC	14%
FIAT	14%
CHEVROLET	13%
HYUNDAI	13%
SCION	13%
MINI	13%
FORD	12%
HONDA	12%
TOYOTA	9%
MAZDA	9%
RAM	8%
SUBARU	6%

Source: 2014 Annual Auto Survey of 311,102 new 2011-15 model year vehicles.

Did You Get a Good Deal?

Customer satisfaction showing the percentage of each type of owner, by make, who was very satisfied with their deal.

MAKE	PAID IN FULL	FINANCE	LEASE
ACURA	72%	72%	70%
AUDI	74%	73%	72%
BMW	72%	71%	67%
BUICK	72%	70%	70%
CADILLAC	74%	73%	69%
CHEVROLET	75%	71%	70%
CHRYSLER	75%	70%	74%
DODGE	75%	70%	76%
FIAT	74%	70%	75%
FORD	74%	70%	69%
GMC	74%	69%	66%
HONDA	74%	72%	68%
HYUNDAI	72%	70%	66%
INFINITI	75%	73%	66%
JAGUAR	83%	74%	72%
JEEP	74%	67%	71%

MAKE	PAID IN FULL	FINANCE	LEASE
KIA	72%	67%	67%
LAND ROVER	69%	61%	59%
LEXUS	74%	73%	72%
LINCOLN	77%	76%	74%
MAZDA	74%	68%	69%
MERCEDES-BENZ	76%	75%	73%
MINI	62%	61%	65%
NISSAN	71%	66%	67%
PORSCHE	76%	75%	74%
RAM	76%	76%	80%
SCION	73%	68%	69%
SUBARU	75%	72%	69%
TOYOTA	73%	70%	67%
VOLKSWAGEN	75%	69%	68%
VOLVO	77%	73%	67%
ALL MAKES	74%	70%	69%

Source: 2014 Annual Auto Survey of 311,102 new 2011-15 model year vehicles.



CAR STRATEGIST

Noises Off!

Some people just hate the sound of car security systems locking and unlocking. So please, dear owner, lower the volume.

CARS HAVE BECOME a lot more communicative in the past decade. Almost every new model comes with a key fob that lets you lock and unlock it remotely with a notifying chirp or horn toot.

But is that vehicular self-expression just more noise pollution in an already raucous world?

We asked our Facebook followers for their thoughts and conducted a separate subscriber poll on our home page.

Respondents were evenly split. Many of them found the alerts to be a nuisance—especially the systems with a full-force horn blast instead of a refined chirp or muted goose honk.

A major gripe was that the startling aural incursion often happens when a person is walking by someone else's car, unaware that the owner is activating it from hundreds of feet away.

We also received a stack of letters from

folks who want the cacophony of klaxons silenced altogether.

But others were reassured by the confirmation that their car was locked. For those who find themselves seeking a ubiquitous Camry in a dark, Escheresque parking structure, remote horn activation is a convenient locator and a safety measure as well.

To appease those who prefer Chopin to Metallica, most newer cars offer settings to hush the racket or merely flash the lights if you want a more stealthy approach. For instructions, you can consult your owner's manual, ask your dealer, or check an online user forum.

→ **HAVE A PROBLEM WITH YOUR MECHANIC OR DEALERSHIP? SOMETHING PUZZLING YOU ABOUT YOUR CAR?** Contact CR's Car Strategist at carstrategist@cr.consumer.org.

ALERT

How to Tell if Your Rental Was a Recall

If your car is recalled for a safety defect, you should expect to receive at least one notification letter from the automaker. But what about when you rent a car? Turns out there's no law that says rental-car companies have to tell you whether the model you're getting was recalled or whether the problem was fixed.

In a 2004 incident, two sisters died in a fiery crash in a recalled but unrepaired Chrysler PT Cruiser from Enterprise Rent-A-Car. After the case was settled—Enterprise paid \$15 million to the victims' family—major rental-car companies pledged in writing not to rent or sell recalled cars that hadn't been repaired.

In addition to Enterprise, the list includes Alamo, Avis, Budget, Dollar, Hertz, National, Payless, Thrifty, and Zipcar, among others.

But the pledge is voluntary. And efforts to make it illegal for companies to rent recalled cars with defects have thus far failed to be passed by Congress.

What's notable is that rental-car companies support such a law. It's car-dealer groups and automakers that have opposed the legislation, fearing liability.

Many consumer safety groups, including Consumers Union, the advocacy arm of Consumer Reports, are urging Congress to pass such a law. And in late February, Transportation Secretary Anthony Foxx and Mark Rosekind, the new chief of the National Highway Traffic Safety Administration, joined the effort. If you would like legislation to be passed, contact your representatives in Congress.

If you're at a rental counter and have concerns about cars with unremedied defects, ask the agent about the company's recalled-vehicle policy.

How to check your rental. Get the vehicle identification number from the rental agreement and look it up at Safercar.gov, NHTSA's website. If you discover that the vehicle has an unresolved problem, demand a refund.

Tell your story. If you rented a recalled car with problems, Consumers Union wants to hear from you. Go to ConsumersUnion.org/share-your-story.

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SELLING IT

You Look Good Enough to Eat

This place must take that phrase literally, according to this menu, submitted by Bob Kaplan of Fairfax Station, Va.



Short Yard

That's what Rick Vincent of Phoenix thought. A customer-service rep told us that the company uses 'yard' to mean a large amount.



Same Box, Different Numbers

A close look at these two cereal boxes, sent in by L.C. Marsh of Kansas City, Mo., reveals a change in serving size, an addition of high fructose corn syrup, and a reduced amount of vitamins and minerals, including vitamin C.



Gut Check

Our always perceptive readers are especially vigilant when it comes to food packaging. Here, two products that raised eyebrows—and a menu that puzzled.

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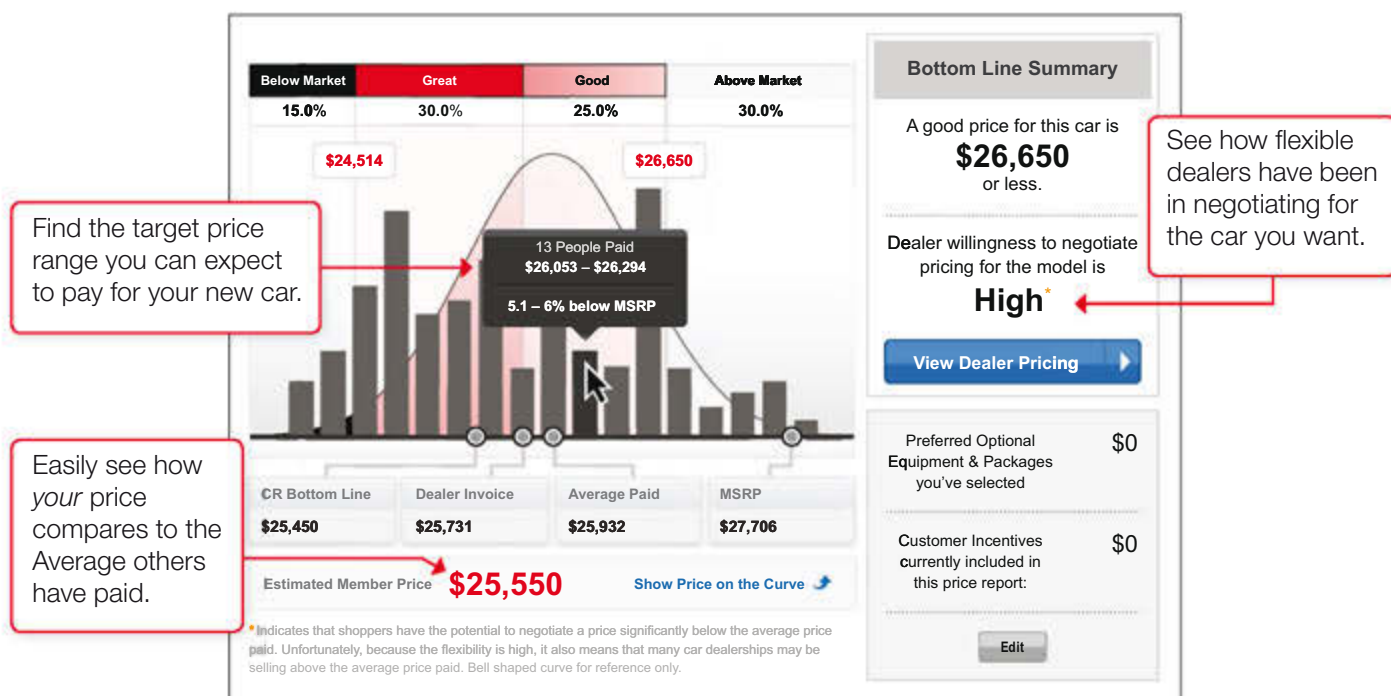
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